CERTIFICATE OF COMPLIANCE
FCC PART 24 CERTIFICATION

Test Lab:	**Applicant Information:**
CELLTECH RESEARCH INC. Testing and Engineering Services 1955 Moss Court Kelowna, B.C. Canada V1Y 9L3 Phone: 250 - 860-3130 Fax: 250 - 860-3110 e-mail: info@celltechlabs.com web site: www.celltechlabs.com	**HANDSPRING INC.** 189 Bernardo Avenue Mountain View, CA 94043

FCC Classification:	**Part 24 Licensed Portable Transmitter Held to Ear (PCE)**
FCC Rule Part(s):	**§24(E), §2**
FCC ID:	**O8FNYNY2**
Model Name(s):	**MANHATTAN, SHEA, ATLANTA**
Equipment Type:	**Single-Mode PCS GSM Phone/PDA**
Tx Frequency Range:	**1850.2 - 1909.8 MHz**
Max. RF Output Power:	**1.04 Watts (EIRP)**
Nominal Conducted Pwr:	**30.0 dBm**
Emission Designator:	**250KGXW**
Frequency Tolerance:	**150 Hz**
Antenna Type:	**Fixed Stubby**
Battery Type:	**3.7V 850mAh Lithium-Ion**

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in §2.947.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

This test report shall not be reproduced partially, or in full, without the prior written approval of Celltech Research Inc. The results and statements contained in this report pertain only to the device(s) evaluated.

Shawn McMillen
General Manager
Celltech Research Inc.

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FCC PART 24 MEASUREMENT REPORT

1.1 SCOPE

Measurement and determination of electromagnetic emissions (EME) from radio frequency devices for compliance with the technical rules and regulations of the Federal Communications Commission.

1.2 GENERAL INFORMATION - §2.1033(a)

APPLICANT:

HANDSPRING INC.
189 Bernardo Avenue
Mountain View, CA 94043

FCC ID	**O8FNYNY2**
Model Name(s)	**MANHATTAN, SHEA, ATLANTA**
EUT Type	**Single-Mode PCS GSM Phone/PDA**
FCC Classification	**Licensed Portable Transmitter Held to Ear (PCE)**
FCC Rule Part(s)	**§24(E), §2**
Application Type	**Part 24 Certification**
Tx Frequency Range	**1850.2 - 1909.8 MHz**
Modulation	**PCS GSM**
Max. RF Output Power	**1.04 Watts (EIRP)**
Nominal Conducted Power	**30.0 dBm**
Emission Designator	**250KGXW**
Frequency Tolerance	**150 Hz**
Battery Type(s)	**3.7V 850mAh Lithium-Ion**
Antenna Type	**Fixed Stubby**

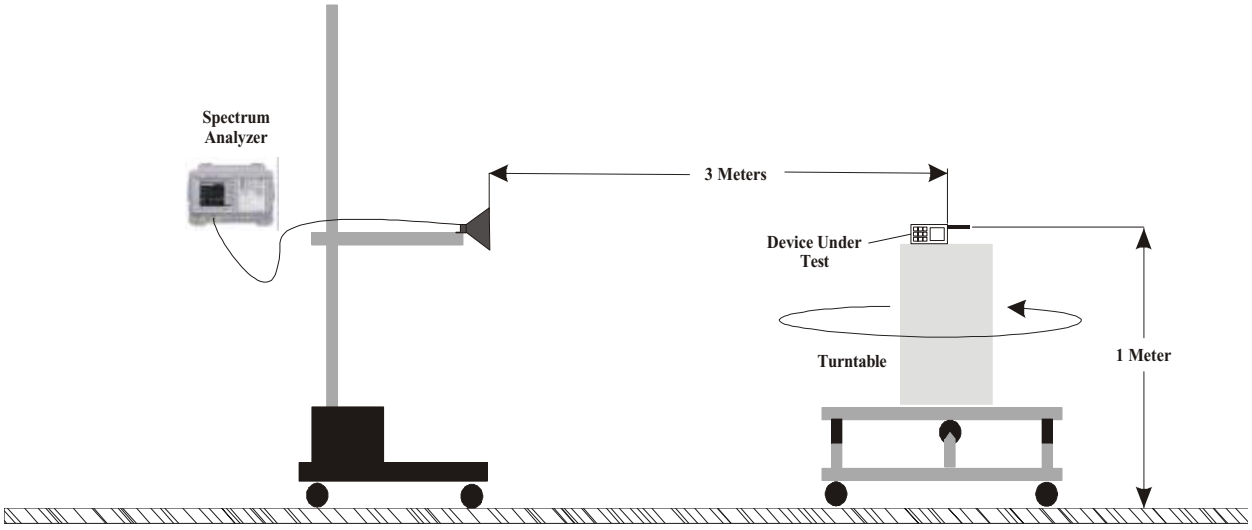
2.1 MEASUREMENT PROCEDURES

2.2 RF OUTPUT POWER MEASUREMENT - §2.1046

The conducted power level on all three devices could not be measured for the EIRP and Field Strength of Spurious Radiation tests. The devices were tested at the maximum conducted power level set by the manufacturer. For the conducted spurious and occupied bandwidth measurements a coaxial cable was soldered to the antenna connector on the PCB board. The conducted power was measured with the coaxial cable connected to a Gigatronics 8650A Universal Power Meter using a burst average power mode. An offset was entered into the power meter to correct for the losses of the attenuator and cable installed before the sensor input. The EUT was placed into test mode using a Wavetek 4201S base station simulator at a full rated power.

2.3 FIELD STRENGTH OF SPURIOUS RADIATION - §2.1053

Radiated and harmonic emissions were measured on a 3-meter outdoor site and performed in accordance with TIA/EIA-603 Section 2.212. The EUT was placed into test mode using a Wavetek 4201S base station simulator at a full rated power. The EUT was placed on the turntable with the transmitter transmitting into a non-radiating load. A receiving antenna located 3 meters from the turntable received any signal radiated from the transmitter and its operating accessories. The receiving antenna was varied in height from 1 to 4 meters and the polarization was varied (horizontal and vertical) to determine the worst-case emission level. All spurious emissions made from the lowest radio frequency generated in the equipment to the tenth harmonic of the carrier were investigated.



Radiated Measurement Test Setup Diagram

2.4 SPURIOUS EMISSIONS AT ANTENNA TERMINAL - §2.1051

In order to measure the conducted power level a coaxial cable was soldered to the duplexer prior to the antenna-matching network. The conducted power was measured with a Gigatronics 8650A Universal Power Meter using a burst average power mode. An offset was entered into the power meter to correct for all losses of the attenuator and cable installed before the sensor input. The EUT was placed into test mode using a Wavetek 4201S base station simulator at a full rated power. The level of the carrier and the various conducted spurious frequencies were measured by means of a calibrated spectrum analyzer. The resolution bandwidth and video bandwidth were set to 1MHz. The spectrum was scanned from 10MHz to 20GHz at the low, medium, and high channels. The radio transmitter was operating at maximum output power. The antenna output terminal of the EUT was connected to the input of a 50Ω spectrum analyzer through a matched 30dB attenuator and coaxial cable. The reported emissions were below the specified limit of -13dBm.

2.5 OCCUPIED BANDWIDTH EMISSION LIMITS - §2.1049(c), §24.238

The EUT was placed into test mode using a Wavetek 4201S base station simulator. In order to measure the occupied bandwidth emissions a coaxial cable was soldered to the duplexer prior to the antenna-matching network. The EUT was then connected to the input of a 50Ω spectrum analyzer through a matched 30dB attenuator. The resolution bandwidth and video bandwidth were set to 3kHz. The radio transmitter was operating at maximum output power. 100% of the in-band modulation was below the specified mask per §24.238.

Specified Limits:

(a) On any frequency removed from the assigned carrier frequency by more than 20kHz, up to and including 45kHz, the sideband was at least 26dB below the carrier.
(b) On any frequency removed from the assigned carrier frequency by more than 45kHz, up to and including 90kHz, the sideband was at least 45dB below the carrier.
(c) On any frequency removed from the assigned carrier frequency by more than 90kHz, up to the first multiple of the carrier frequency, the sideband was at least 60dB below the carrier of $40 + \log_{10}$ (mean power output in Watts) dB, whichever was the smaller attenuation.

2.6 FREQUENCY STABILITY / TEMPERATURE VARIATION - §24.235

The minimum frequency stability shall be ±150Hz referenced to a received carrier frequency. This meets the requirement for operational accuracy of 0.00001%. An HP 53181A Frequency Counter was used to measure the error in the fundamental frequency. The transmitter was set to maximum power at the center frequency of the band.

Measurement Method:

The frequency stability of the transmitter was measured by:

1. Temperature: The temperature was varied from -30°C to +60°C at intervals no more than 10°C throughout the temperature range using an environmental chamber. A period of time sufficient to stabilize all of the components in the equipment was allowed prior to each frequency measurement.

2. Primary Supply Voltage: The primary supply voltage was set at the specified nominal rating and reduced to the battery operating endpoint specified by the manufacturer. The voltage was measured at the terminals of the power supply or at the input to the cable normally provided with the equipment.

Time Period and Procedure:

1. The carrier frequency of the transmitter was measured at room temperature (25°C to 27°C to provide a reference).
2. The equipment was subjected to an overnight "soak" at -30°C without any power applied.
3. After the overnight "soak" at -30°C, the measurement of the carrier frequency of the transmitter was made within a three-minute interval after applying power to the transmitter.
4. Frequency measurements were made at 10°C intervals up to +60°C, then back to room temperature. A minimum period of one hour was provided to allow stabilization of the equipment at each temperature level.

3.1 TEST DATA

3.2 EFFECTIVE ISOTROPIC RADIATED POWER OUTPUT - §24.232(b)

PCS GSM MODE

Test Date(s)	Unit Tested	Freq. Tuned	Nominal EUT Conducted Power	Maximum Field Strength of EUT (Horiz. Pol.)	Horn Gain	Horn Forward Conducted Power	EIRP of EUT Horn Gain + Horn Forward Conducted Power	
		(MHz)	(dBm)	(dBm)	(dBi)	(dBm)	(dBm)	(Watts)
03/12/02	Manhattan	1850.2	30.0	- 8.261	6.67	22.90	29.57	0.906
	Manhattan	1880.0	30.0	- 8.355	6.68	23.51	30.19	1.04
	Manhattan	1909.8	30.0	- 9.140	6.69	23.42	30.11	1.03
03/12/02	Shea	1850.2	30.0	- 8.897	6.67	22.91	29.58	0.908
	Shea	1880.0	30.0	- 8.465	6.68	23.40	30.08	1.02
	Shea	1909.8	30.0	- 9.157	6.69	23.39	30.08	1.02
03/28/02	Atlanta	1850.2	30.0	- 7.677	6.67	23.12	29.67	0.927
	Atlanta	1880.0	30.0	- 9.206	6.68	22.94	29.52	0.895
	Atlanta	1909.8	30.0	- 9.531	6.69	23.03	29.64	0.920

EIRP Measurements by Substitution Method:

The EUT was placed on a turntable 3-meters from the receive antenna and placed into test mode using a Wavetek 4201S base station simulator at a full rated power. The field of maximum intensity was found by rotating the EUT approximately 360 degrees and changing the height of the receive antenna from 1 to 4 meters. Once a peak was found the spectrum analyzer was set to peak hold and the value of the emission was extracted. The field strength was recorded for each channel being tested, and for both EUT antenna polarizations and modes. A standard gain horn antenna was substituted in place of the EUT. The antenna was fed through a directional coupler and the power at the coupler port was monitored. A signal generator and power amplifier controlled the antenna, and the input level of the antenna was adjusted to the same field strength level as the EUT. The feed point for the antenna was then connected to a calibrated power meter and the power adjusted to read the same as the coupler port previously recorded, this is to account for any mismatch in impedance, which may occur at the horn antenna. The conducted power at the antenna feed point was recorded. The forward conducted power for the horn antenna was then determined and the EIRP level was determined by adding the horn forward conducted power and the antenna gain in dB.

Notes:
1. The conducted power level on all three devices could not be measured for the EIRP and Field Strength of Spurious Radiation tests. The devices were tested at the maximum conducted power level set by the manufacturer.
2. EIRP measurements were performed for both horizontal and vertical antenna polarizations. The worst-case configuration is reported.

3.3 FIELD STRENGTH OF SPURIOUS RADIATION - § 2.1053

Manhattan Unit

Operating Frequency (MHz):	1850.2
Channel:	512 (Low)
Nominal EUT Cond. Pwr. (dBm):	30.00
Measured EIRP (dBm):	29.57
Modulation:	PCS GSM
Distance:	3 Meters
Limit:	43 + 10 log (W) = 42.57 dBc

Frequency (MHz)	Field Strength of Spurious Radiation (dBm)	Horn Forward Cond. Pwr. (dBm)	Standard Gain Horn Antenna Gain (dBi)	POL (H/V)	EIRP (dBm)	ERP (dBm)	dBc
3700.40	-89.43	-56.54	6.6	H	-49.94	-52.08	81.65
5550.60	-90.23	-52.43	7.8	H	-44.63	-46.77	76.34
7400.80	-91.08	-54.50	7.8	H	-46.70	-48.84	78.41
9251.00	-92.36	-54.34	7.6	H	-46.74	-48.88	78.45
11101.20	-94.53	-58.17	8.5	H	-49.67	-51.81	81.38
12951.40	-96.91	-59.03	8.8	H	-50.23	-52.37	81.94
14801.60	-98.03	-60.15	9.6	H	-50.55	-52.69	82.26
16651.80	-99.37	-61.54	9.0	H	-52.54	-54.68	84.25
18502.00	-101.43	-65.22	9.3	H	-55.92	-58.06	87.63

Radiated Measurements by Substitution Method:

The EUT was placed on a turntable 3-meters from the receive antenna at maximum power level. The field of maximum intensity was found by rotating the EUT approximately 360 degrees and changing the height of the receive antenna from 1 to 4 meters. The field strength was recorded from a calibrated spectrum analyzer for each channel being tested. A standard gain horn antenna was substituted in place of the EUT. The antenna was fed through a directional coupler and the power at the coupler port was monitored. A signal generator and power amplifier controlled the antenna, and the input level of the antenna was adjusted to the same field strength level as the EUT. The feed point for the antenna was then connected to a calibrated power meter and the power adjusted to read the same as the coupler port previously recorded, this is to account for any mismatch in impedance, which may occur at the horn antenna. The conducted power at the antenna feed point was recorded. The forward conducted power for the horn antenna was then determined and the EIRP level was determined by adding the horn forward conducted power and the antenna gain in dB.

Notes:
1. Test Date: 03/12/02
2. All other spurious emissions were found to be below the magnitude of each harmonic.
3. Spurious emissions more than 20 dB below the limit are reported, even though not required per §2.1051.

FIELD STRENGTH OF SPURIOUS RADIATION - § 2.1053

Manhattan Unit

Operating Frequency (MHz):	1880.0
Channel:	661 (Mid)
Nominal EUT Cond. Pwr. (dBm):	30.00
Measured EIRP (dBm):	30.19
Modulation:	PCS GSM
Distance:	3 Meters
Limit:	43 + 10 log (W) = 43.17 dBc

Frequency (MHz)	Field Strength of Spurious Radiation (dBm)	Horn Forward Cond. Pwr. (dBm)	Standard Gain Horn Antenna Gain (dBi)	POL (H/V)	EIRP (dBm)	ERP (dBm)	dBc
3760.00	-89.52	-56.63	6.6	H	-50.03	-52.17	82.36
5640.00	-90.47	-52.67	7.8	H	-44.87	-47.01	77.20
7520.00	-91.18	-54.60	7.8	H	-46.80	-48.94	79.13
9400.00	-92.66	-54.64	7.6	H	-47.04	-49.18	79.37
11280.00	-93.89	-57.53	8.5	H	-49.03	-51.17	81.36
13160.00	-95.08	-57.20	8.8	H	-48.40	-50.54	80.73
15040.00	-96.97	-59.09	9.6	H	-49.49	-51.63	81.82
16920.00	-99.03	-61.20	9.0	H	-52.20	-54.34	84.53
18800.00	-101.72	-65.51	9.3	H	-56.21	-58.35	88.54

Radiated Measurements by Substitution Method:

The EUT was placed on a turntable 3-meters from the receive antenna at maximum power level. The field of maximum intensity was found by rotating the EUT approximately 360 degrees and changing the height of the receive antenna from 1 to 4 meters. The field strength was recorded from a calibrated spectrum analyzer for each channel being tested. A standard gain horn antenna was substituted in place of the EUT. The antenna was fed through a directional coupler and the power at the coupler port was monitored. A signal generator and power amplifier controlled the antenna, and the input level of the antenna was adjusted to the same field strength level as the EUT. The feed point for the antenna was then connected to a calibrated power meter and the power adjusted to read the same as the coupler port previously recorded, this is to account for any mismatch in impedance, which may occur at the horn antenna. The conducted power at the antenna feed point was recorded. The forward conducted power for the horn antenna was then determined and the EIRP level was determined by adding the horn forward conducted power and the antenna gain in dB.

Notes:
1. Test Date: 03/12/02
2. All other spurious emissions were found to be below the magnitude of each harmonic.
3. Spurious emissions more than 20 dB below the limit are reported, even though not required per §2.1051.

FIELD STRENGTH OF SPURIOUS RADIATION - § 2.1053

Manhattan Unit

Operating Frequency (MHz):	1908.8
Channel:	810 (High)
Nominal EUT Cond. Pwr. (dBm):	30.00
Measured EIRP (dBm):	30.11
Modulation:	PCS GSM
Distance:	3 Meters
Limit:	43 + 10 log (W) = 43.13 dBc

Frequency (MHz)	Field Strength of Spurious Radiation (dBm)	Horn Forward Cond. Pwr. (dBm)	Standard Gain Horn Antenna Gain (dBi)	POL (H/V)	EIRP (dBm)	ERP (dBm)	dBc
3817.60	-91.98	-59.09	6.6	H	-52.49	-54.63	84.74
5726.40	-92.07	-54.27	7.8	H	-46.47	-48.61	78.72
7635.20	-92.91	-56.33	7.8	H	-48.53	-50.67	80.78
9544.00	-93.86	-55.84	7.6	H	-48.24	-50.38	80.49
11452.80	-94.73	-58.37	8.5	H	-49.87	-52.01	82.12
13361.60	-96.21	-58.33	8.8	H	-49.53	-51.67	81.78
15270.40	-99.06	-61.18	9.6	H	-51.58	-53.72	83.83
17179.20	-101.23	-63.40	9.0	H	-54.40	-56.54	86.65
19088.00	-102.67	-66.46	9.3	H	-57.16	-59.30	89.41

Radiated Measurements by Substitution Method:

The EUT was placed on a turntable 3-meters from the receive antenna at maximum power level. The field of maximum intensity was found by rotating the EUT approximately 360 degrees and changing the height of the receive antenna from 1 to 4 meters. The field strength was recorded from a calibrated spectrum analyzer for each channel being tested. A standard gain horn antenna was substituted in place of the EUT. The antenna was fed through a directional coupler and the power at the coupler port was monitored. A signal generator and power amplifier controlled the antenna, and the input level of the antenna was adjusted to the same field strength level as the EUT. The feed point for the antenna was then connected to a calibrated power meter and the power adjusted to read the same as the coupler port previously recorded, this is to account for any mismatch in impedance, which may occur at the horn antenna. The conducted power at the antenna feed point was recorded. The forward conducted power for the horn antenna was then determined and the EIRP level was determined by adding the horn forward conducted power and the antenna gain in dB.

Notes:

1. Test Date: 03/12/02
2. All other spurious emissions were found to be below the magnitude of each harmonic.
3. Spurious emissions more than 20 dB below the limit are reported, even though not required per §2.1051.

FIELD STRENGTH OF SPURIOUS RADIATION - § 2.1053

Shea Unit

Operating Frequency (MHz):	1850.2
Channel:	512 (Low)
Nominal EUT Cond. Pwr. (dBm):	30.00
Measured EIRP (dBm):	29.58
Modulation:	PCS GSM
Distance:	3 Meters
Limit:	43 + 10 log (W) = 42.58 dBc

Frequency (MHz)	Field Strength of Spurious Radiation (dBm)	Horn Forward Cond. Pwr. (dBm)	Standard Gain Horn Antenna Gain (dBi)	POL (H/V)	EIRP (dBm)	ERP (dBm)	dBc
3700.40	-89.39	-56.50	6.6	H	-49.90	-52.04	81.62
5550.60	-90.25	-52.45	7.8	H	-44.65	-46.79	76.37
7400.80	-90.98	-54.40	7.8	H	-46.60	-48.74	78.32
9251.00	-92.03	-54.01	7.6	H	-46.41	-48.55	78.13
11101.20	-94.37	-58.01	8.5	H	-49.51	-51.65	81.23
12951.40	-96.74	-58.86	8.8	H	-50.06	-52.20	81.78
14801.60	-97.89	-60.01	9.6	H	-50.41	-52.55	82.13
16651.80	-99.07	-61.24	9.0	H	-52.24	-54.38	83.96
18502.00	-101.23	-65.02	9.3	H	-55.72	-57.86	87.44

Radiated Measurements by Substitution Method:

The EUT was placed on a turntable 3-meters from the receive antenna at maximum power level. The field of maximum intensity was found by rotating the EUT approximately 360 degrees and changing the height of the receive antenna from 1 to 4 meters. The field strength was recorded from a calibrated spectrum analyzer for each channel being tested. A standard gain horn antenna was substituted in place of the EUT. The antenna was fed through a directional coupler and the power at the coupler port was monitored. A signal generator and power amplifier controlled the antenna, and the input level of the antenna was adjusted to the same field strength level as the EUT. The feed point for the antenna was then connected to a calibrated power meter and the power adjusted to read the same as the coupler port previously recorded, this is to account for any mismatch in impedance, which may occur at the horn antenna. The conducted power at the antenna feed point was recorded. The forward conducted power for the horn antenna was then determined and the EIRP level was determined by adding the horn forward conducted power and the antenna gain in dB.

Notes:

1. Test Date: 03/12/02
2. All other spurious emissions were found to be below the magnitude of each harmonic.
3. Spurious emissions more than 20 dB below the limit are reported, even though not required per §2.1051.

FIELD STRENGTH OF SPURIOUS RADIATION - § 2.1053

Shea Unit

Operating Frequency (MHz):	1880.0
Channel:	661 (Mid)
Nominal EUT Cond. Pwr. (dBm):	30.00
Measured EIRP (dBm):	30.08
Modulation:	PCS GSM
Distance:	3 Meters
Limit:	43 + 10 log (W) = 43.09 dBc

Frequency (MHz)	Field Strength of Spurious Radiation (dBm)	Horn Forward Cond. Pwr. (dBm)	Standard Gain Horn Antenna Gain (dBi)	POL (H/V)	EIRP (dBm)	ERP (dBm)	dBc
3760.00	-90.15	-57.26	6.6	H	-50.66	-52.80	82.88
5640.00	-90.83	-53.03	7.8	H	-45.23	-47.37	77.45
7520.00	-91.36	-54.78	7.8	H	-46.98	-49.12	79.20
9400.00	-92.91	-54.89	7.6	H	-47.29	-49.43	79.51
11280.00	-94.01	-57.65	8.5	H	-49.15	-51.29	81.37
13160.00	-95.55	-57.67	8.8	H	-48.87	-51.01	81.09
15040.00	-97.16	-59.28	9.6	H	-49.68	-51.82	81.90
16920.00	-99.33	-61.50	9.0	H	-52.50	-54.64	84.72
18800.00	-102.04	-65.83	9.3	H	-56.53	-58.67	88.75

Radiated Measurements by Substitution Method:

The EUT was placed on a turntable 3-meters from the receive antenna at maximum power level. The field of maximum intensity was found by rotating the EUT approximately 360 degrees and changing the height of the receive antenna from 1 to 4 meters. The field strength was recorded from a calibrated spectrum analyzer for each channel being tested. A standard gain horn antenna was substituted in place of the EUT. The antenna was fed through a directional coupler and the power at the coupler port was monitored. A signal generator and power amplifier controlled the antenna, and the input level of the antenna was adjusted to the same field strength level as the EUT. The feed point for the antenna was then connected to a calibrated power meter and the power adjusted to read the same as the coupler port previously recorded, this is to account for any mismatch in impedance, which may occur at the horn antenna. The conducted power at the antenna feed point was recorded. The forward conducted power for the horn antenna was then determined and the EIRP level was determined by adding the horn forward conducted power and the antenna gain in dB.

Notes:

1. Test Date: 03/12/02
2. All other spurious emissions were found to be below the magnitude of each harmonic.
3. Spurious emissions more than 20 dB below the limit are reported, even though not required per §2.1051.

FIELD STRENGTH OF SPURIOUS RADIATION - § 2.1053

Shea Unit

Operating Frequency (MHz):	1908.8
Channel:	810 (High)
Nominal EUT Cond. Pwr. (dBm):	30.00
Measured EIRP (dBm):	30.08
Modulation:	PCS GSM
Distance:	3 Meters
Limit:	43 + 10 log (W) = 43.09 dBc

Frequency (MHz)	Field Strength of Spurious Radiation (dBm)	Horn Forward Cond. Pwr. (dBm)	Standard Gain Horn Antenna Gain (dBi)	POL (H/V)	EIRP (dBm)	ERP (dBm)	dBc
3817.60	-90.38	-57.49	6.6	H	-50.89	-53.03	83.11
5726.40	-91.42	-53.62	7.8	H	-45.82	-47.96	78.04
7635.20	-91.91	-55.33	7.8	H	-47.53	-49.67	79.75
9544.00	-92.93	-54.91	7.6	H	-47.31	-49.45	79.53
11452.80	-93.98	-57.62	8.5	H	-49.12	-51.26	81.34
13361.60	-96.47	-58.59	8.8	H	-49.79	-51.93	82.01
15270.40	-98.74	-60.86	9.6	H	-51.26	-53.40	83.48
17179.20	-101.48	-63.65	9.0	H	-54.65	-56.79	86.87
19088.00	-102.78	-66.57	9.3	H	-57.27	-59.41	89.49

Radiated Measurements by Substitution Method:

The EUT was placed on a turntable 3-meters from the receive antenna at maximum power level. The field of maximum intensity was found by rotating the EUT approximately 360 degrees and changing the height of the receive antenna from 1 to 4 meters. The field strength was recorded from a calibrated spectrum analyzer for each channel being tested. A standard gain horn antenna was substituted in place of the EUT. The antenna was fed through a directional coupler and the power at the coupler port was monitored. A signal generator and power amplifier controlled the antenna, and the input level of the antenna was adjusted to the same field strength level as the EUT. The feed point for the antenna was then connected to a calibrated power meter and the power adjusted to read the same as the coupler port previously recorded, this is to account for any mismatch in impedance, which may occur at the horn antenna. The conducted power at the antenna feed point was recorded. The forward conducted power for the horn antenna was then determined and the EIRP level was determined by adding the horn forward conducted power and the antenna gain in dB.

Notes:

1. Test Date: 03/12/02
2. All other spurious emissions were found to be below the magnitude of each harmonic.
3. Spurious emissions more than 20 dB below the limit are reported, even though not required per §2.1051.

FIELD STRENGTH OF SPURIOUS RADIATION - § 2.1053

Atlanta Unit

Operating Frequency (MHz):	1850.2
Channel:	512 (Low)
Nominal EUT Cond. Pwr. (dBm):	30.00
Measured EIRP (dBm):	29.67
Modulation:	PCS GSM
Distance:	3 Meters
Limit:	43 + 10 log (W) = 42.67 dBc

Frequency (MHz)	Field Strength of Spurious Radiation (dBm)	Horn Forward Cond. Pwr. (dBm)	Standard Gain Horn Antenna Gain (dBi)	POL (H/V)	EIRP (dBm)	ERP (dBm)	dBc
3700.40	-86.78	-53.89	6.6	H	-47.29	-49.43	79.10
5550.60	-89.35	-51.55	7.8	H	-43.75	-45.89	75.56
7400.80	-93.67	-57.09	7.8	H	-49.29	-51.43	81.10
9251.00	-94.42	-56.40	7.6	H	-48.80	-50.94	80.61
11101.20	-94.94	-58.58	8.5	H	-50.08	-52.22	81.89
12951.40	-95.51	-57.63	8.8	H	-48.83	-50.97	80.64
14801.60	-97.22	-59.34	9.6	H	-49.74	-51.88	81.55
16651.80	-98.68	-60.85	9.0	H	-51.85	-53.99	83.66
18502.00	-100.63	-64.42	9.3	H	-55.12	-57.26	86.93

Radiated Measurements by Substitution Method:

The EUT was placed on a turntable 3-meters from the receive antenna at maximum power level. The field of maximum intensity was found by rotating the EUT approximately 360 degrees and changing the height of the receive antenna from 1 to 4 meters. The field strength was recorded from a calibrated spectrum analyzer for each channel being tested. A standard gain horn antenna was substituted in place of the EUT. The antenna was fed through a directional coupler and the power at the coupler port was monitored. A signal generator and power amplifier controlled the antenna, and the input level of the antenna was adjusted to the same field strength level as the EUT. The feed point for the antenna was then connected to a calibrated power meter and the power adjusted to read the same as the coupler port previously recorded, this is to account for any mismatch in impedance, which may occur at the horn antenna. The conducted power at the antenna feed point was recorded. The forward conducted power for the horn antenna was then determined and the EIRP level was determined by adding the horn forward conducted power and the antenna gain in dB.

Notes:

1. Test Date: 03/28/02
2. All other spurious emissions were found to be below the magnitude of each harmonic.
3. Spurious emissions more than 20 dB below the limit are reported, even though not required per §2.1051.

FIELD STRENGTH OF SPURIOUS RADIATION - § 2.1053

Atlanta Unit

Operating Frequency (MHz):	1880.0
Channel:	661 (Mid)
Nominal EUT Cond. Pwr. (dBm):	30.00
Measured EIRP (dBm):	29.52
Modulation:	PCS GSM
Distance:	3 Meters
Limit:	43 + 10 log (W) = 42.52 dBc

Frequency (MHz)	Field Strength of Spurious Radiation (dBm)	Horn Forward Cond. Pwr. (dBm)	Standard Gain Horn Antenna Gain (dBi)	POL (H/V)	EIRP (dBm)	ERP (dBm)	dBc
3760.00	-90.31	-57.42	6.6	H	-50.82	-52.96	82.48
5640.00	-92.64	-54.84	7.8	H	-47.04	-49.18	78.70
7520.00	-94.93	-58.35	7.8	H	-50.55	-52.69	82.21
9400.00	-96.37	-58.35	7.6	H	-50.75	-52.89	82.41
11280.00	-95.82	-59.46	8.5	H	-50.96	-53.10	82.62
13160.00	-98.88	-61.00	8.8	H	-52.20	-54.34	83.86
15040.00	-99.98	-62.10	9.6	H	-52.50	-54.64	84.16
16920.00	-101.21	-63.38	9.0	H	-54.38	-56.52	86.04
18800.00	-101.93	-65.72	9.3	H	-56.42	-58.56	88.08

Radiated Measurements by Substitution Method:

The EUT was placed on a turntable 3-meters from the receive antenna at maximum power level. The field of maximum intensity was found by rotating the EUT approximately 360 degrees and changing the height of the receive antenna from 1 to 4 meters. The field strength was recorded from a calibrated spectrum analyzer for each channel being tested. A standard gain horn antenna was substituted in place of the EUT. The antenna was fed through a directional coupler and the power at the coupler port was monitored. A signal generator and power amplifier controlled the antenna, and the input level of the antenna was adjusted to the same field strength level as the EUT. The feed point for the antenna was then connected to a calibrated power meter and the power adjusted to read the same as the coupler port previously recorded, this is to account for any mismatch in impedance, which may occur at the horn antenna. The conducted power at the antenna feed point was recorded. The forward conducted power for the horn antenna was then determined and the EIRP level was determined by adding the horn forward conducted power and the antenna gain in dB.

Notes:

1. Test Date: 03/28/02
2. All other spurious emissions were found to be below the magnitude of each harmonic.
3. Spurious emissions more than 20 dB below the limit are reported, even though not required per §2.1051.

FIELD STRENGTH OF SPURIOUS RADIATION - § 2.1053

Atlanta Unit

Operating Frequency (MHz):	1908.8
Channel:	810 (High)
Nominal EUT Cond. Pwr. (dBm):	30.00
Measured EIRP (dBm):	29.64
Modulation:	PCS GSM
Distance:	3 Meters
Limit:	43 + 10 log (W) = 42.64 dBc

Frequency (MHz)	Field Strength of Spurious Radiation (dBm)	Horn Forward Cond. Pwr. (dBm)	Standard Gain Horn Antenna Gain (dBi)	POL (H/V)	EIRP (dBm)	ERP (dBm)	dBc
3817.60	-88.31	-55.42	6.6	H	-48.82	-50.96	80.60
5726.40	-90.26	-52.46	7.8	H	-44.66	-46.80	76.44
7635.20	-93.57	-56.99	7.8	H	-49.19	-51.33	80.97
9544.00	-94.82	-56.80	7.6	H	-49.20	-51.34	80.98
11452.80	-96.63	-60.27	8.5	H	-51.77	-53.91	83.55
13361.60	-97.96	-60.08	8.8	H	-51.28	-53.42	83.06
15270.40	-99.47	-61.59	9.6	H	-51.99	-54.13	83.77
17179.20	-100.23	-62.40	9.0	H	-53.40	-55.54	85.18
19088.00	-101.42	-65.21	9.3	H	-55.91	-58.05	87.69

Radiated Measurements by Substitution Method:

The EUT was placed on a turntable 3-meters from the receive antenna at maximum power level. The field of maximum intensity was found by rotating the EUT approximately 360 degrees and changing the height of the receive antenna from 1 to 4 meters. The field strength was recorded from a calibrated spectrum analyzer for each channel being tested. A standard gain horn antenna was substituted in place of the EUT. The antenna was fed through a directional coupler and the power at the coupler port was monitored. A signal generator and power amplifier controlled the antenna, and the input level of the antenna was adjusted to the same field strength level as the EUT. The feed point for the antenna was then connected to a calibrated power meter and the power adjusted to read the same as the coupler port previously recorded, this is to account for any mismatch in impedance, which may occur at the horn antenna. The conducted power at the antenna feed point was recorded. The forward conducted power for the horn antenna was then determined and the EIRP level was determined by adding the horn forward conducted power and the antenna gain in dB.

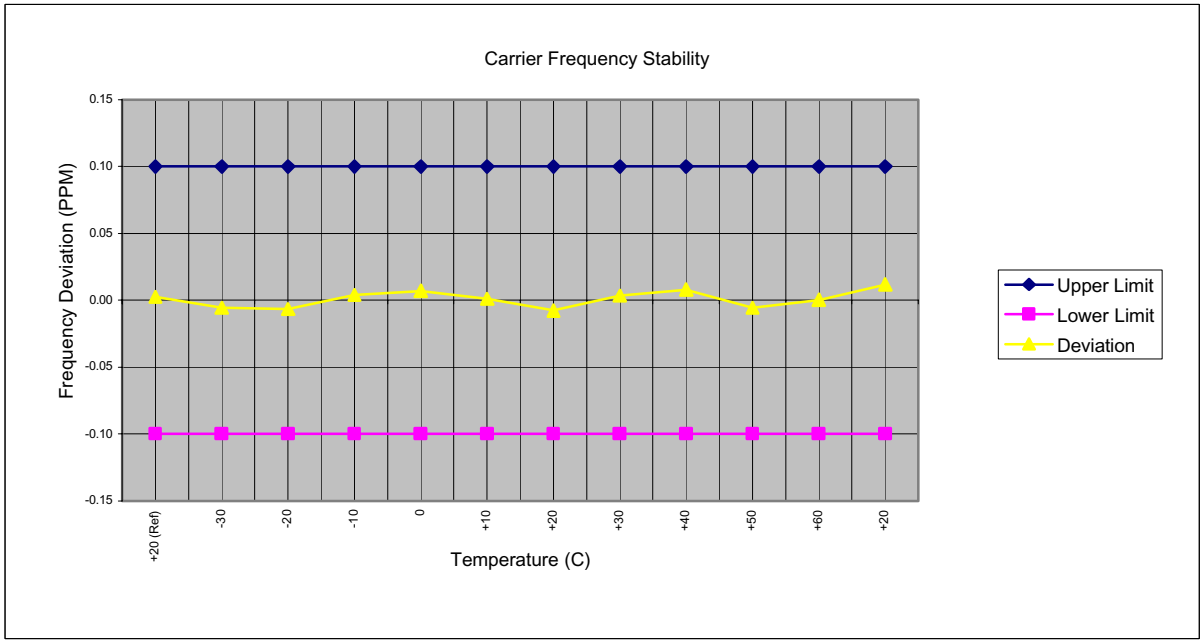
Notes:

1. Test Date: 03/28/02
2. All other spurious emissions were found to be below the magnitude of each harmonic.
3. Spurious emissions more than 20 dB below the limit are reported, even though not required per §2.1051.

3.4 FREQUENCY STABILITY - § 24.235

Test Date: 5/3/2002
Carrier Frequency (GHz): 1.88
Channel: 661
Mode: PCS GSM
Deviation Limit (PPM): 0.1

Temperature	Voltage	Power	Carrier Frequency Deviation		Specification	
(C)	(%)	(VDC)	(Hz)	(PPM)	Lower Limit (PPM)	Upper Limit (PPM)
+20 (Ref)	100	3.7	4.40	0.002	0.1	-0.1
-30	100	3.7	-10.73	-0.006	0.1	-0.1
-20	100	3.7	-12.40	-0.007	0.1	-0.1
-10	100	3.7	7.57	0.004	0.1	-0.1
0	100	3.7	13.13	0.007	0.1	-0.1
+10	100	3.7	1.78	0.001	0.1	-0.1
+20	100	3.7	-14.67	-0.008	0.1	-0.1
+30	100	3.7	6.72	0.004	0.1	-0.1
+40	100	3.7	14.87	0.008	0.1	-0.1
+50	100	3.7	-10.71	-0.006	0.1	-0.1
+60	100	3.7	0.74	0.000	0.1	-0.1
+20	Battery Endpoint	3.4	22.00	0.012	0.1	-0.1



4.1 TEST EQUIPMENT

Type	Model	Calibration Due Date	Serial No.
HP Signal Generator	8648D (9kHz-4.0GHz)	Feb 2003	3847A00611
Rohde & Schwarz Signal Generator	SMR40 (10MHz-40GHz)	Nov 2002	835537/022
Gigatronics Power Meter	8652A	Feb 2003	1835272
Gigatronics Power Sensor	80701A (0.05-18GHz)	Feb 2003	1833535
Gigatronics Power Sensor	80701A (0.05-18GHz)	Feb 2003	1833542
Amplifier Research Power Amp.	5S1G4 (5W, 800MHz-4.2GHz)	N/A	26235
Microwave System Amplifier	HP 83017A (0.5-26.5GHz)	N/A	3123A00587
Network Analyzer	HP 8753E (30kHz-3GHz)	Feb 2003	US38433013
Audio Analyzer	HP 8903B	Nov 2002	3729A18691
Modulation Analyzer	HP 8901A	July 2002	3749A07154
Frequency Counter	HP 53181A (3GHz)	May 2002	3736A05175
DC Power Supply	HP E3611A	N/A	KR83015294
GSM Base Station Simulator	Wavetek 4201S	Oct 2002	0213286
Multi-Device Controller	EMCO 2090	N/A	9912-1484
Mini Mast	EMCO 2075	N/A	0001-2277
Turntable	EMCO 2080-1.2/1.5	N/A	0002-1002
Double Ridged Horn Antenna	ETS 3115 (1-18GHz)	Oct. 2002	6267
Double Ridged Horn Antenna	ETS 3115 (1-18GHz)	Oct. 2002	6276
Horn Antenna	Chase BBHA 9120-A (0.7-4.8GHz)	Sept 2002	9120A-239
Horn Antenna	Chase BBHA 9120-A (0.7-4.8GHz)	Sept 2002	9120A-240
Roberts Dipoles	Compliance Design (2 sets) 3121C	June 2002	
Spectrum Analyzer	HP 8594E	Feb 2003	3543A02721
Spectrum Analyzer	HP E4408B	Nov 2002	US39240170
Shielded Screen Room	Lindgren R.F. 18W-2/2-0	N/A	16297
Environmental Chamber	ESPEC ECT-2 (Temperature/Humidity)	Feb 2002	0510154-B

5.1 CONCLUSION

The data in this measurement report shows that the HANDSPRING INC. Models: MANHATTAN, SHEA, & ATLANTA Single-Mode PCS GSM Phone/PDA FCC ID: O8FNYNY2 complies with the applicable requirements specified in FCC Rule Parts 2 and 24.

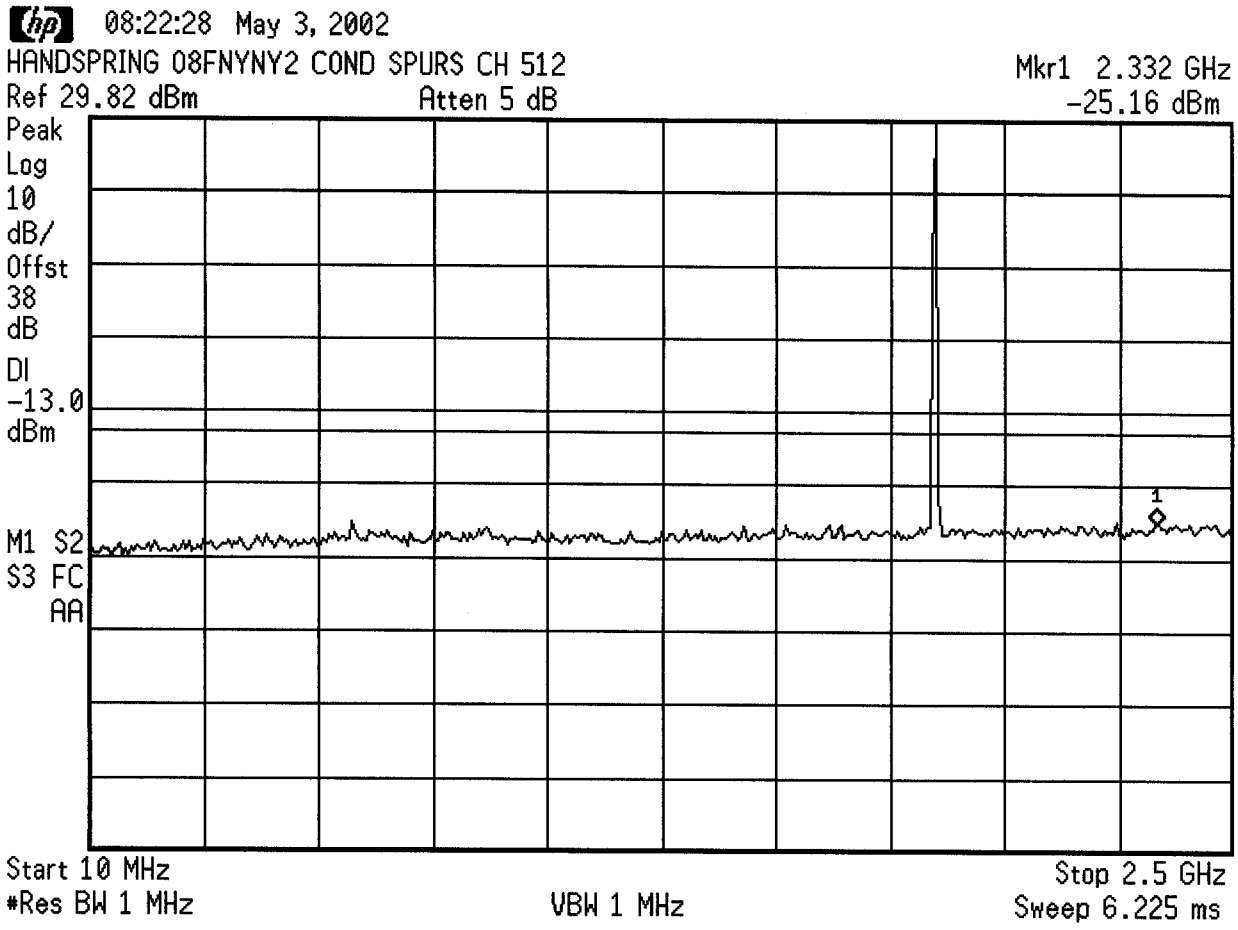
APPENDIX A - TEST PLOTS

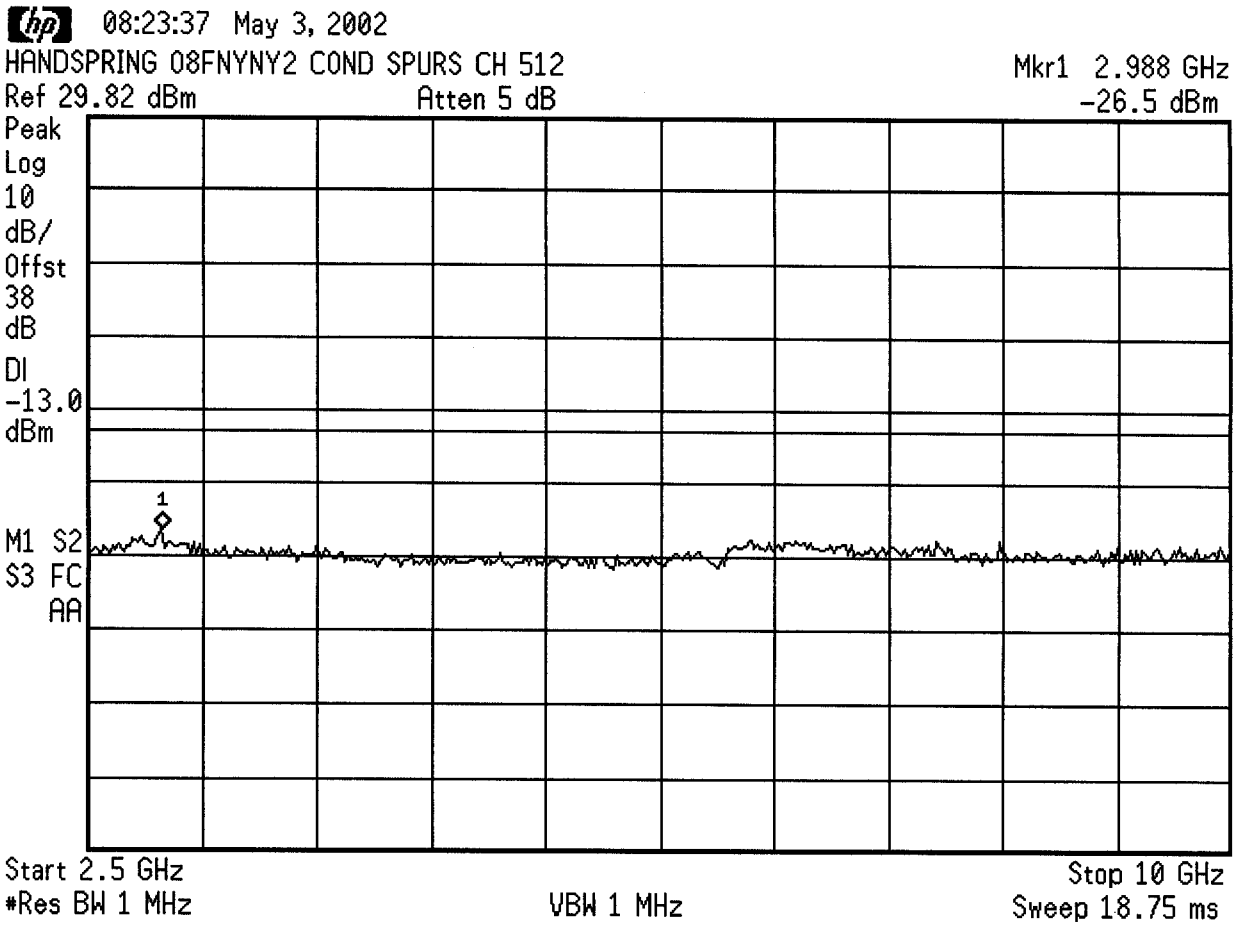
a) **Conducted Spurious Emissions**

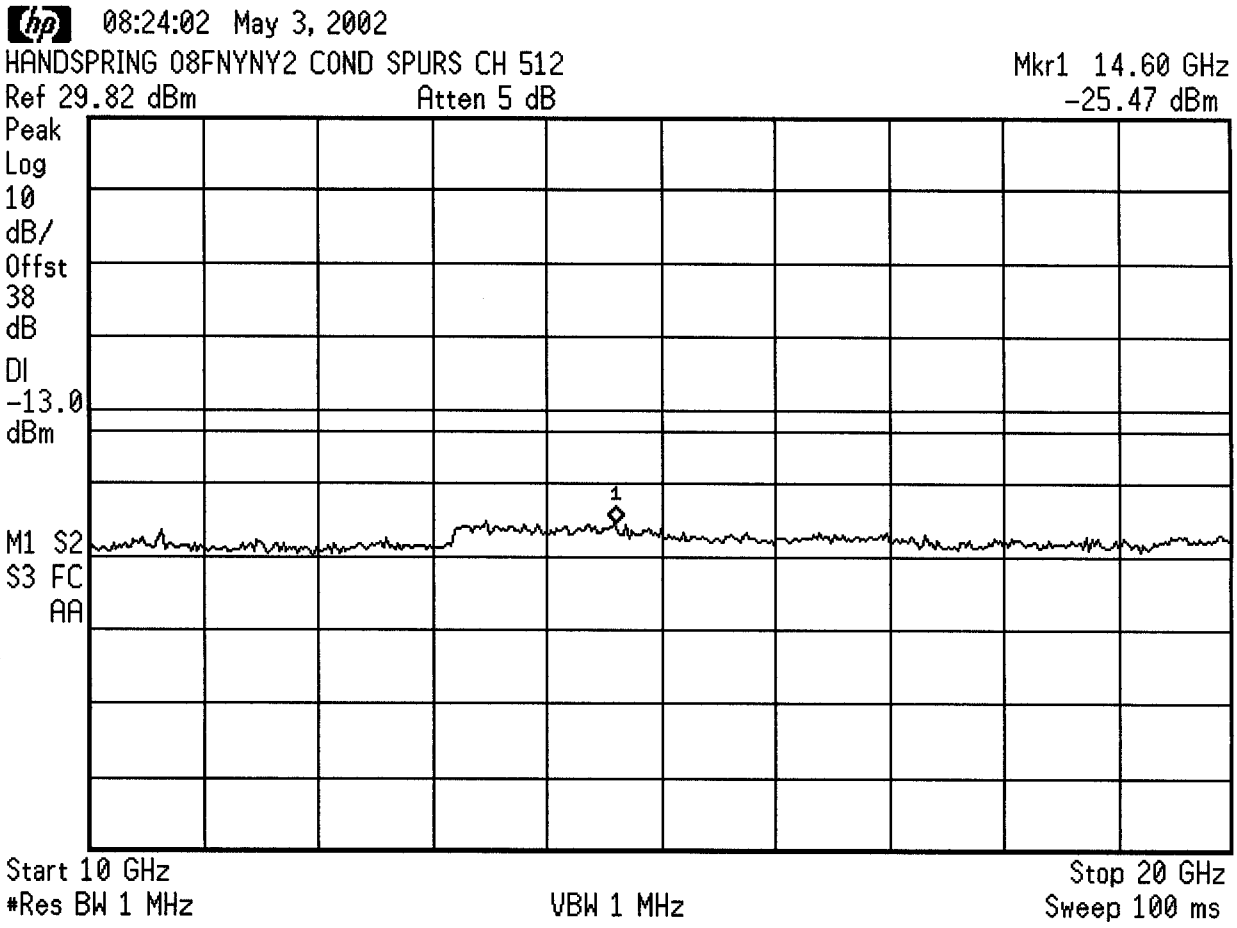
b) **Receiver Spurious Emissions**

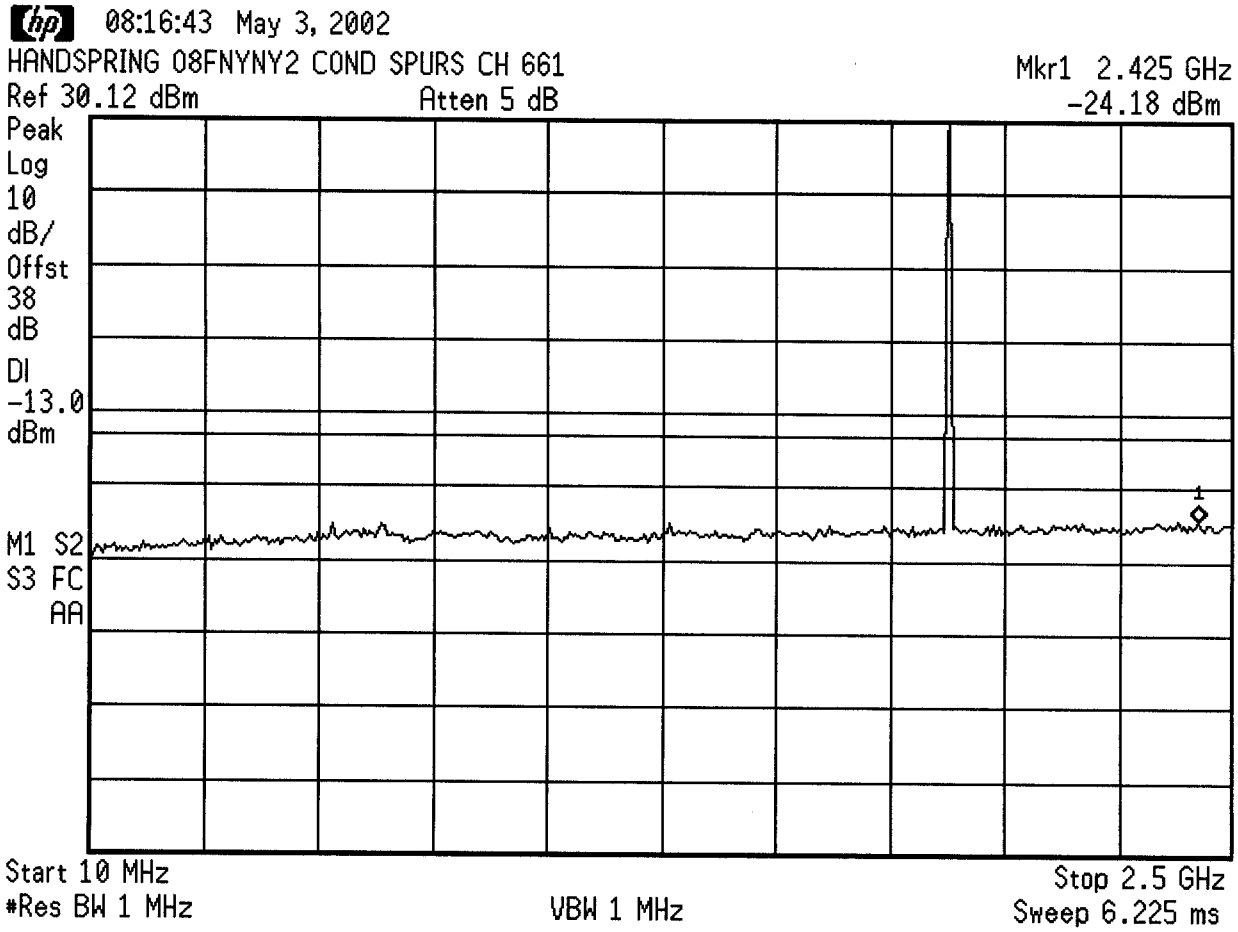
c) **Band Edge Requirements**

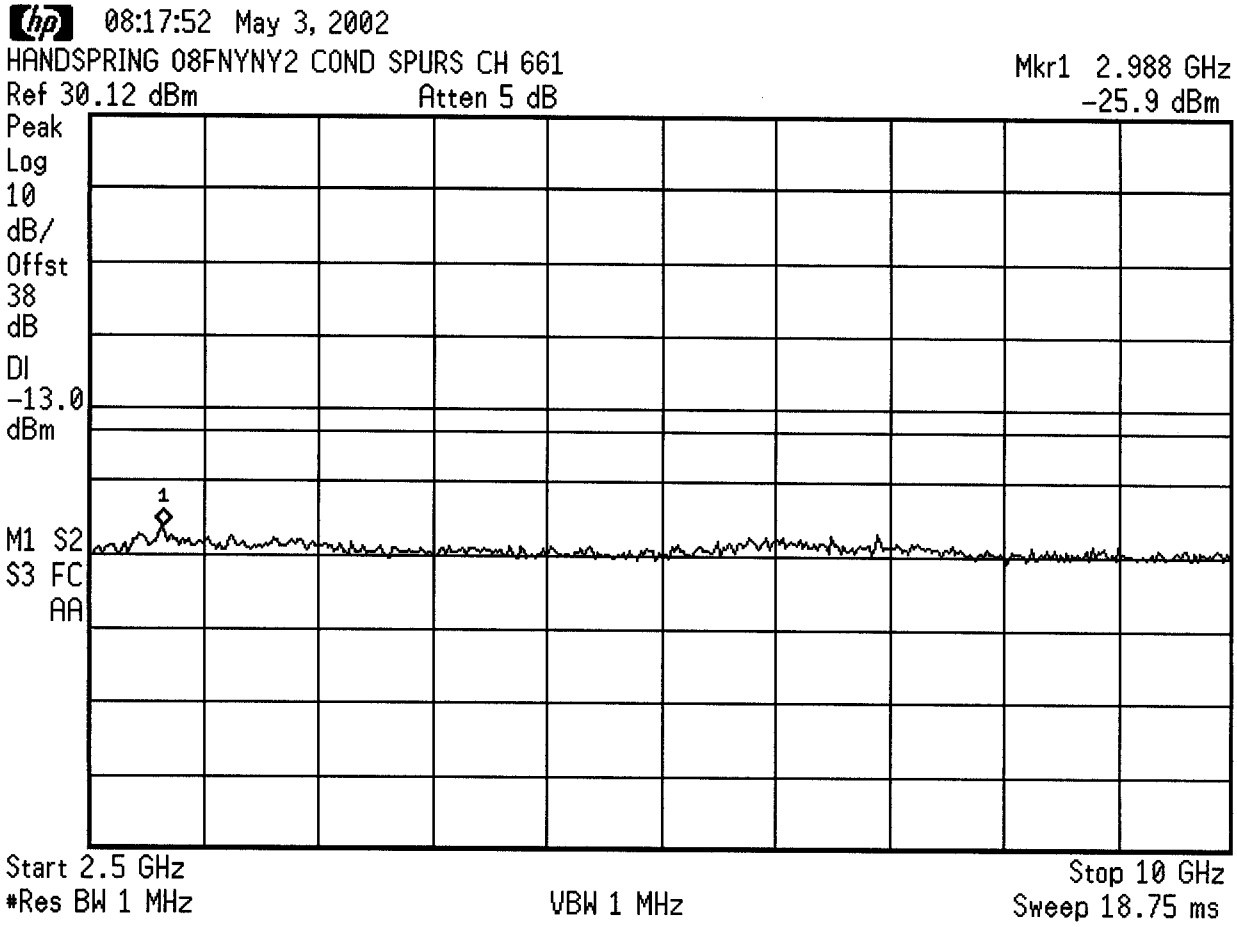
d) **Occupied Bandwidth**

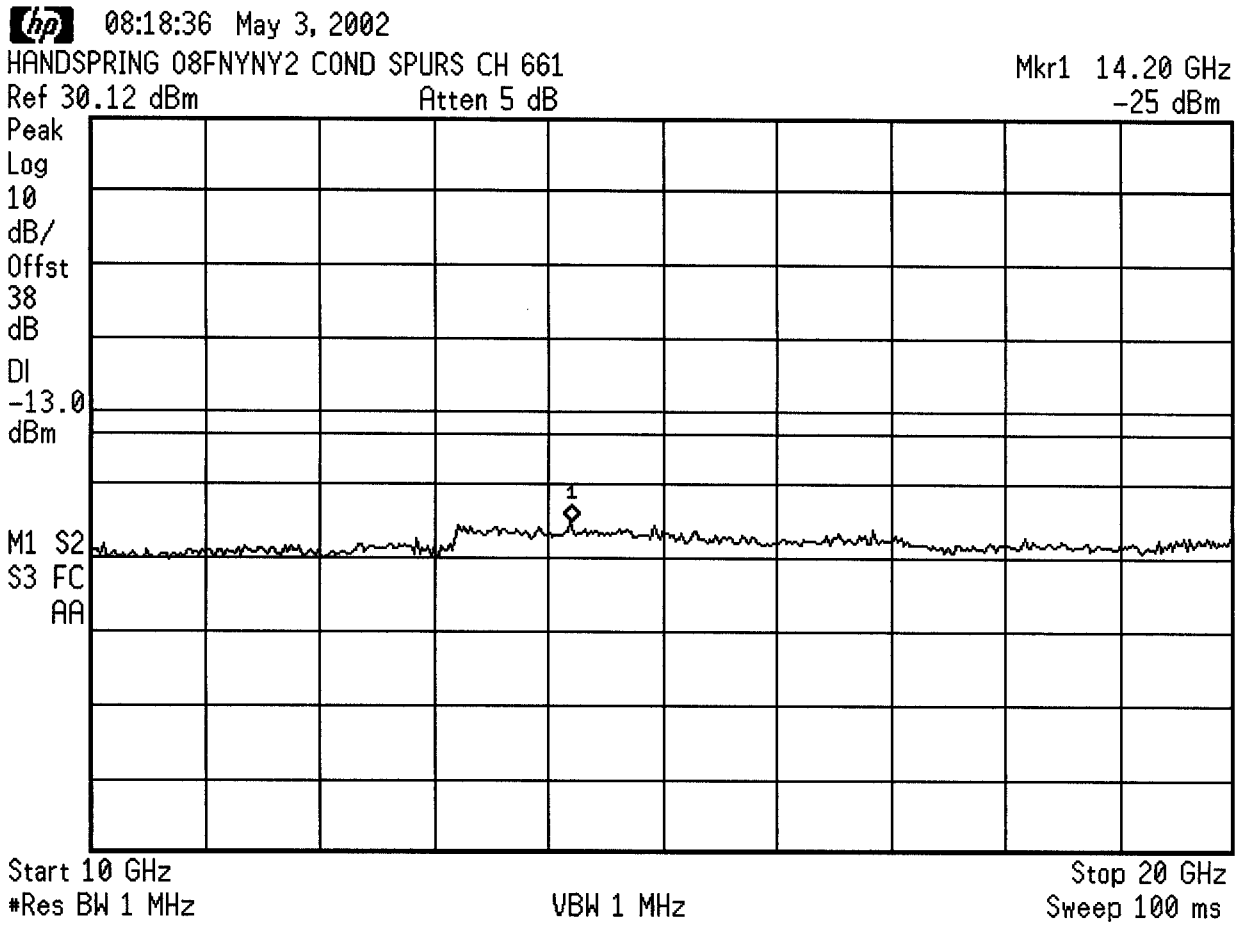

08:22:28 May 3, 2002
HANDSPRING 08FNYNY2 COND SPURS CH 512
Mkr1 2.332 GHz
Ref 29.82 dBm
Atten 5 dB
-25.16 dBm
Peak
Log
10
dB/
Offst
38
dB
Dl
-13.0
dBm
M1 S2
S3 FC
AA
1
Start 10 MHz
Stop 2.5 GHz
#Res BW 1 MHz
VBW 1 MHz
Sweep 6.225 ms

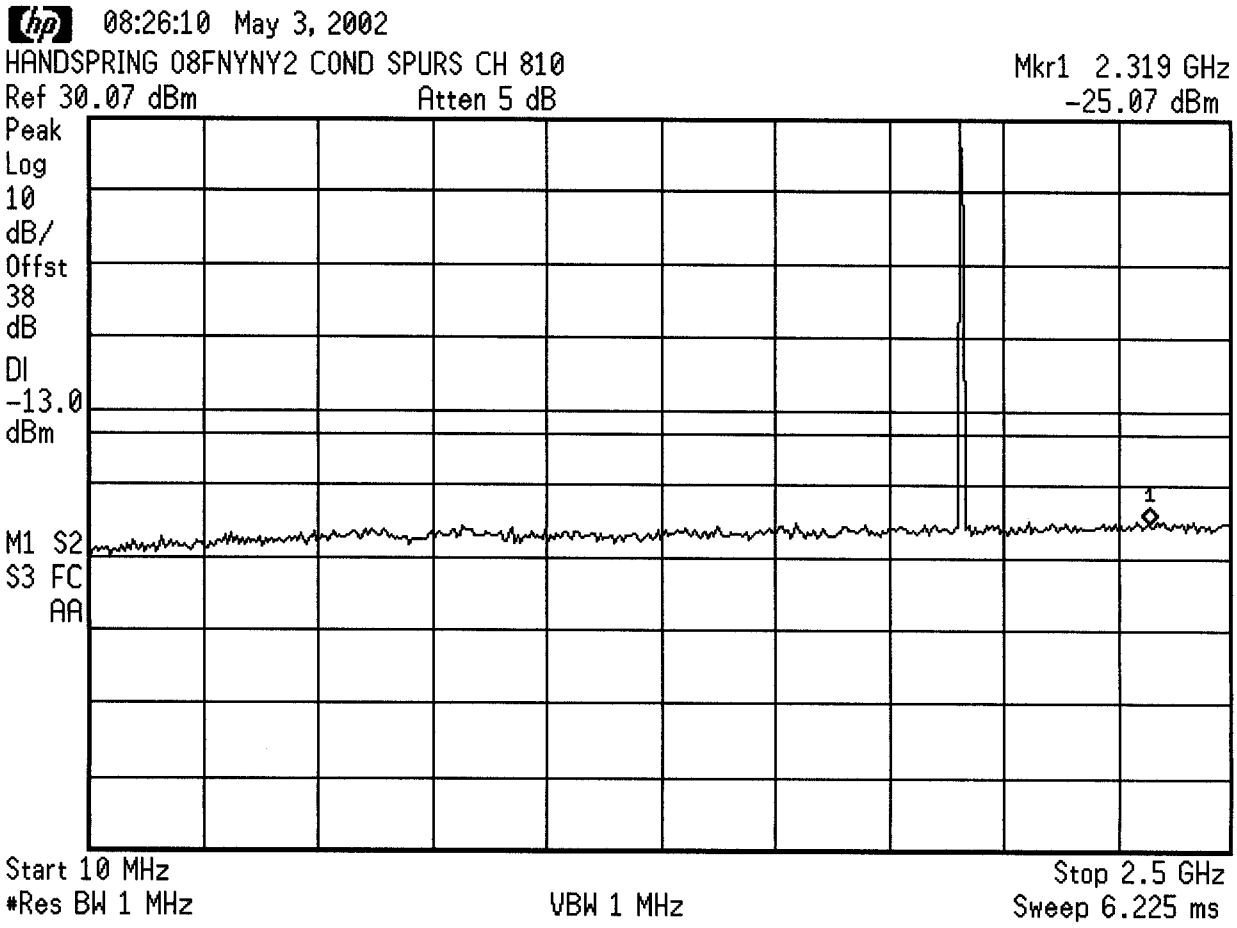

08:23:37 May 3, 2002
HANDSPRING 08FNYNY2 COND SPURS CH 512
Mkr1 2.988 GHz
Ref 29.82 dBm
Atten 5 dB
-26.5 dBm
Peak
Log
10
dB/
Offst
38
dB
Dl
-13.0
dBm
1
M1 S2
S3 FC
AA
Start 2.5 GHz
Stop 10 GHz
#Res BW 1 MHz
VBW 1 MHz
Sweep 18.75 ms

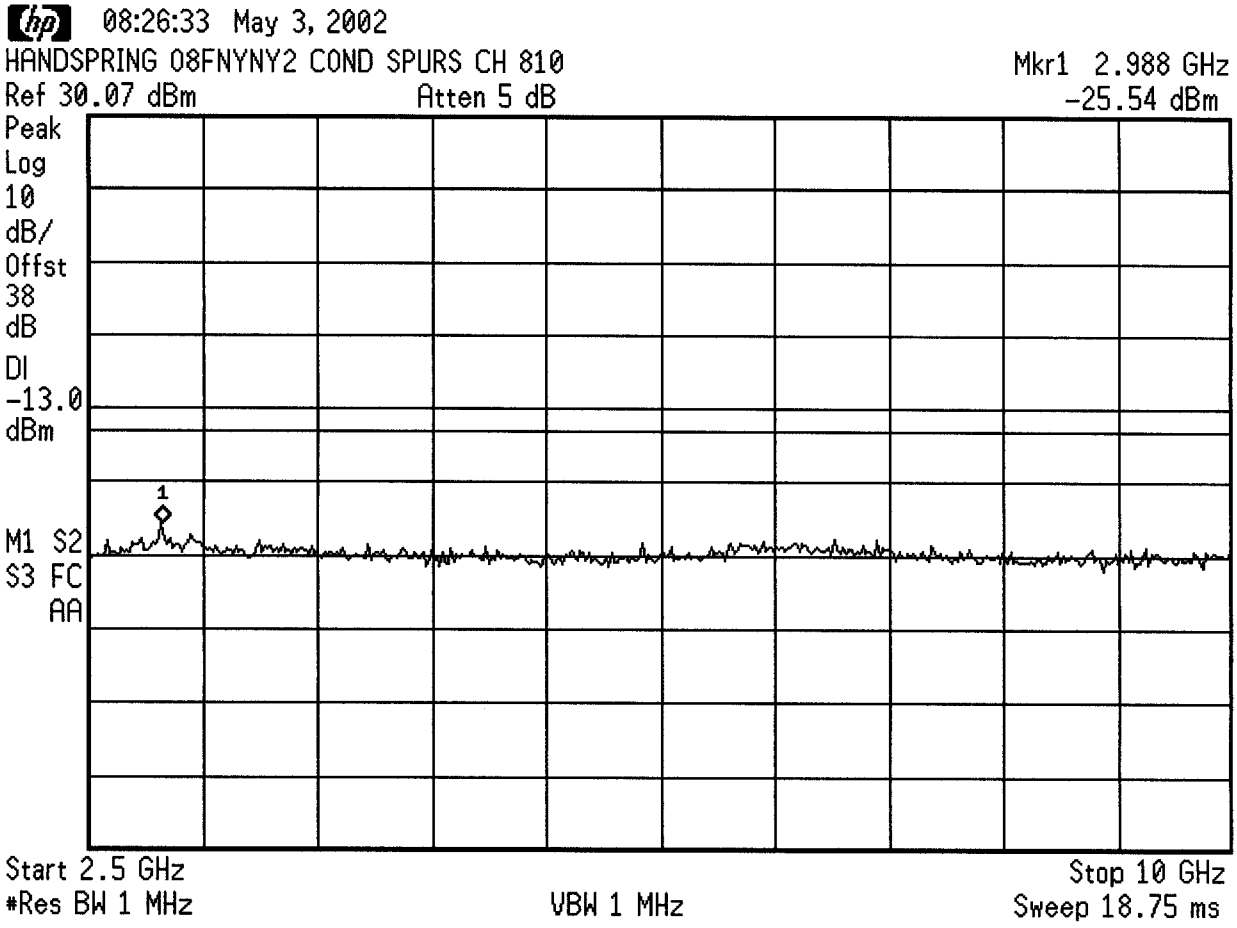

08:24:02 May 3, 2002
HANDSPRING 08FNYNY2 COND SPURS CH 512
Mkr1 14.60 GHz
Ref 29.82 dBm
Atten 5 dB
-25.47 dBm
Peak
Log
10
dB/
Offst
38
dB
Dl
-13.0
dBm
M1 S2
S3 FC
AA
1
Start 10 GHz
Stop 20 GHz
#Res BW 1 MHz
VBW 1 MHz
Sweep 100 ms

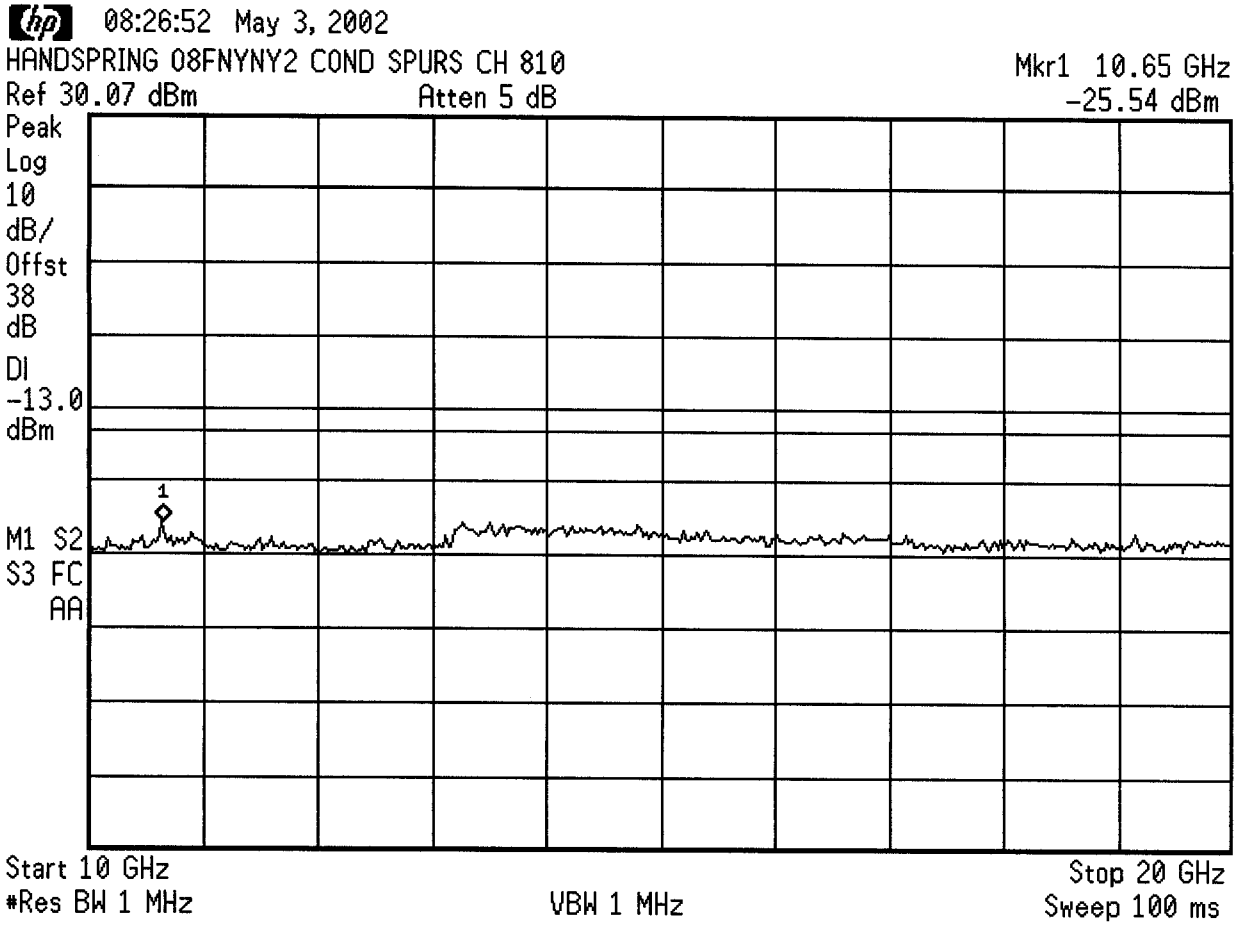

08:16:43 May 3, 2002
HANDSPRING 08FNYNY2 COND SPURS CH 661
Mkr1 2.425 GHz
Ref 30.12 dBm
Atten 5 dB
-24.18 dBm
Peak
Log
10
dB/
Offst
38
dB
Dl
-13.0
dBm
M1 S2
S3 FC
AA
1
Start 10 MHz
Stop 2.5 GHz
#Res BW 1 MHz
VBW 1 MHz
Sweep 6.225 ms

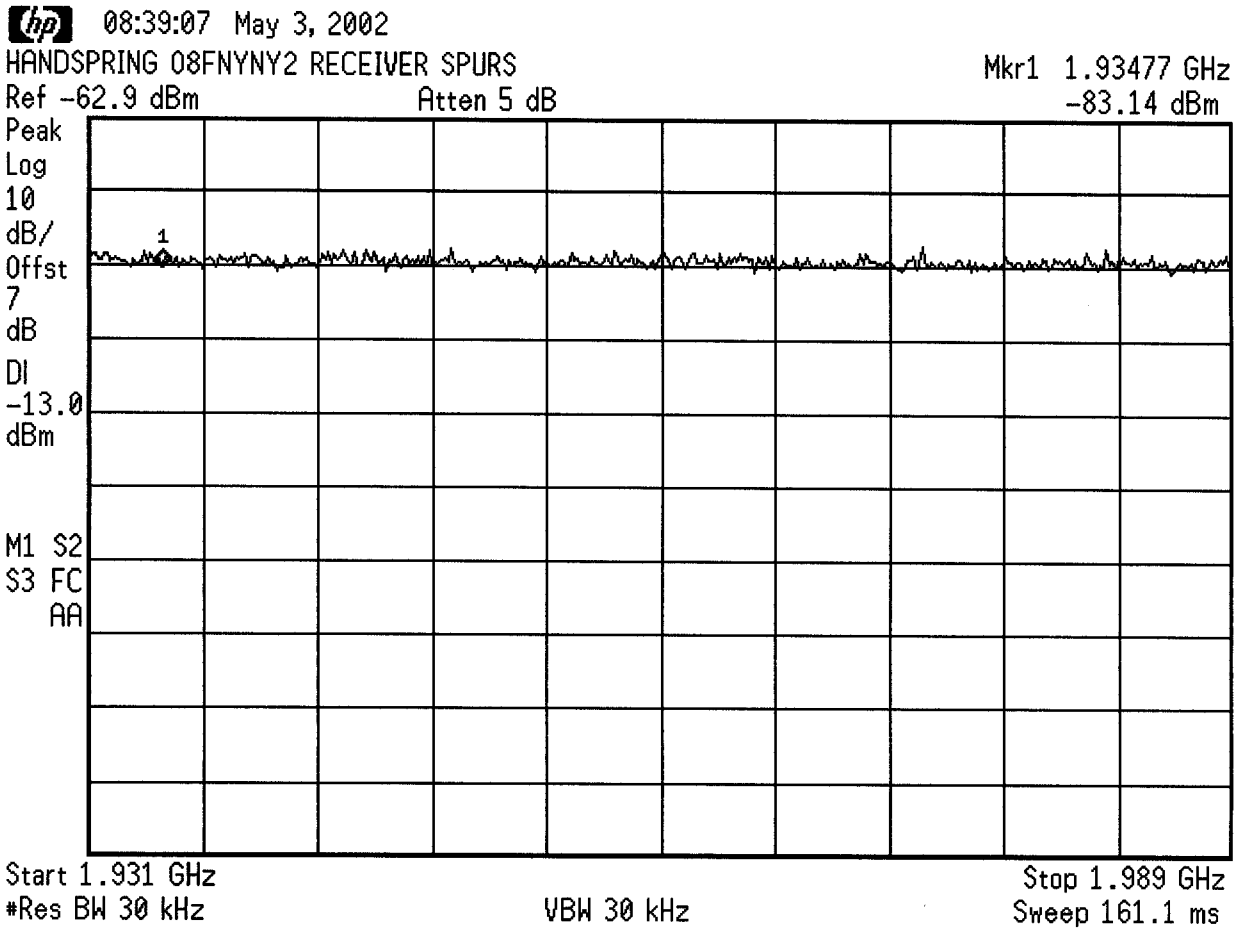

08:17:52 May 3, 2002
HANDSPRING 08FNYNY2 COND SPURS CH 661
Ref 30.12 dBm
Atten 5 dB
Mkr1 2.988 GHz
-25.9 dBm
Peak
Log
10
dB/
Offst
38
dB
Dl
-13.0
dBm
1
M1 S2
S3 FC
AA
Start 2.5 GHz
#Res BW 1 MHz
VBW 1 MHz
Stop 10 GHz
Sweep 18.75 ms

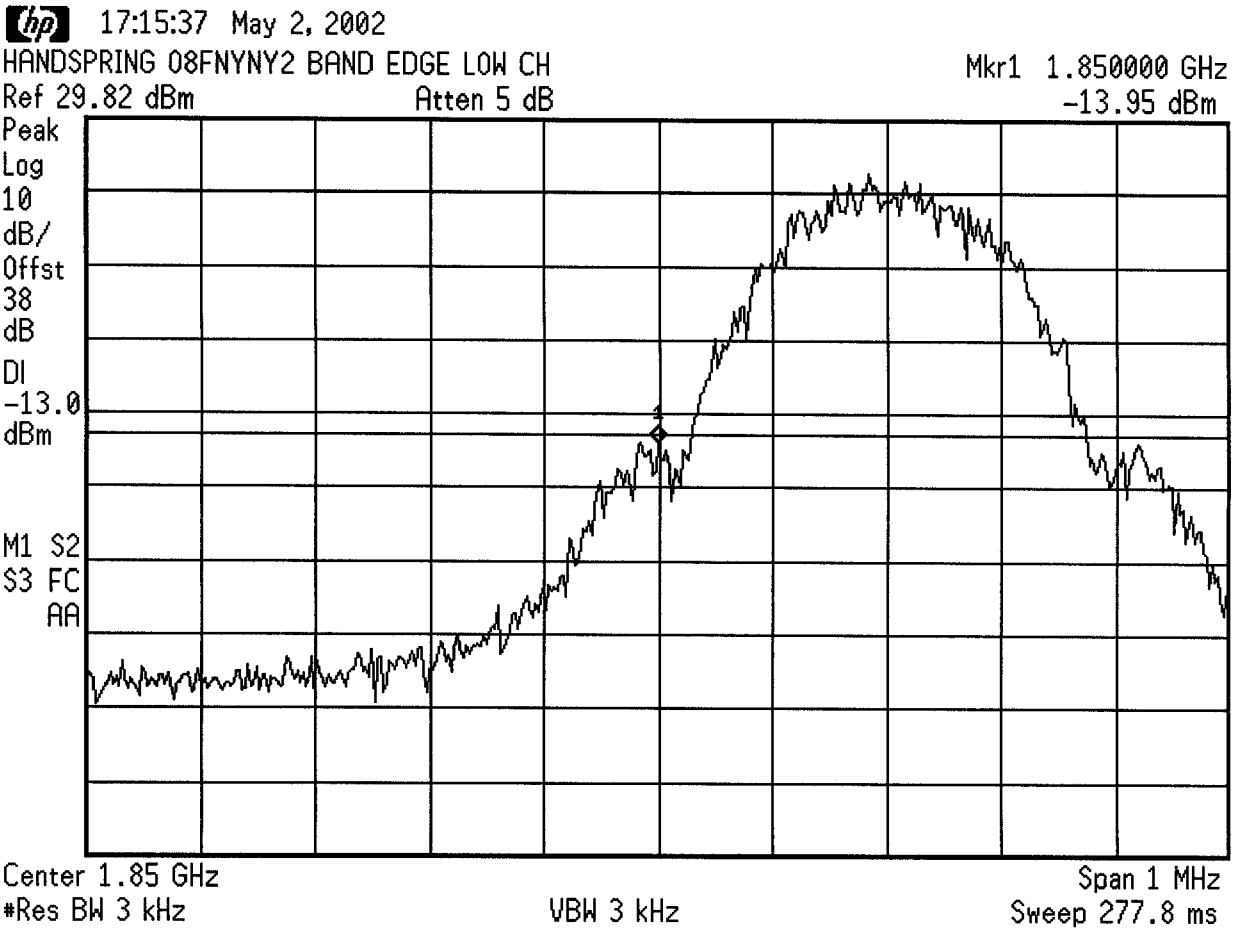

08:18:36 May 3, 2002
HANDSPRING 08FNYNY2 COND SPURS CH 661
Mkr1 14.20 GHz
Ref 30.12 dBm
Atten 5 dB
-25 dBm
Peak
Log
10
dB/
Offst
38
dB
Dl
-13.0
dBm
M1 S2
S3 FC
AA
1
Start 10 GHz
Stop 20 GHz
#Res BW 1 MHz
VBW 1 MHz
Sweep 100 ms

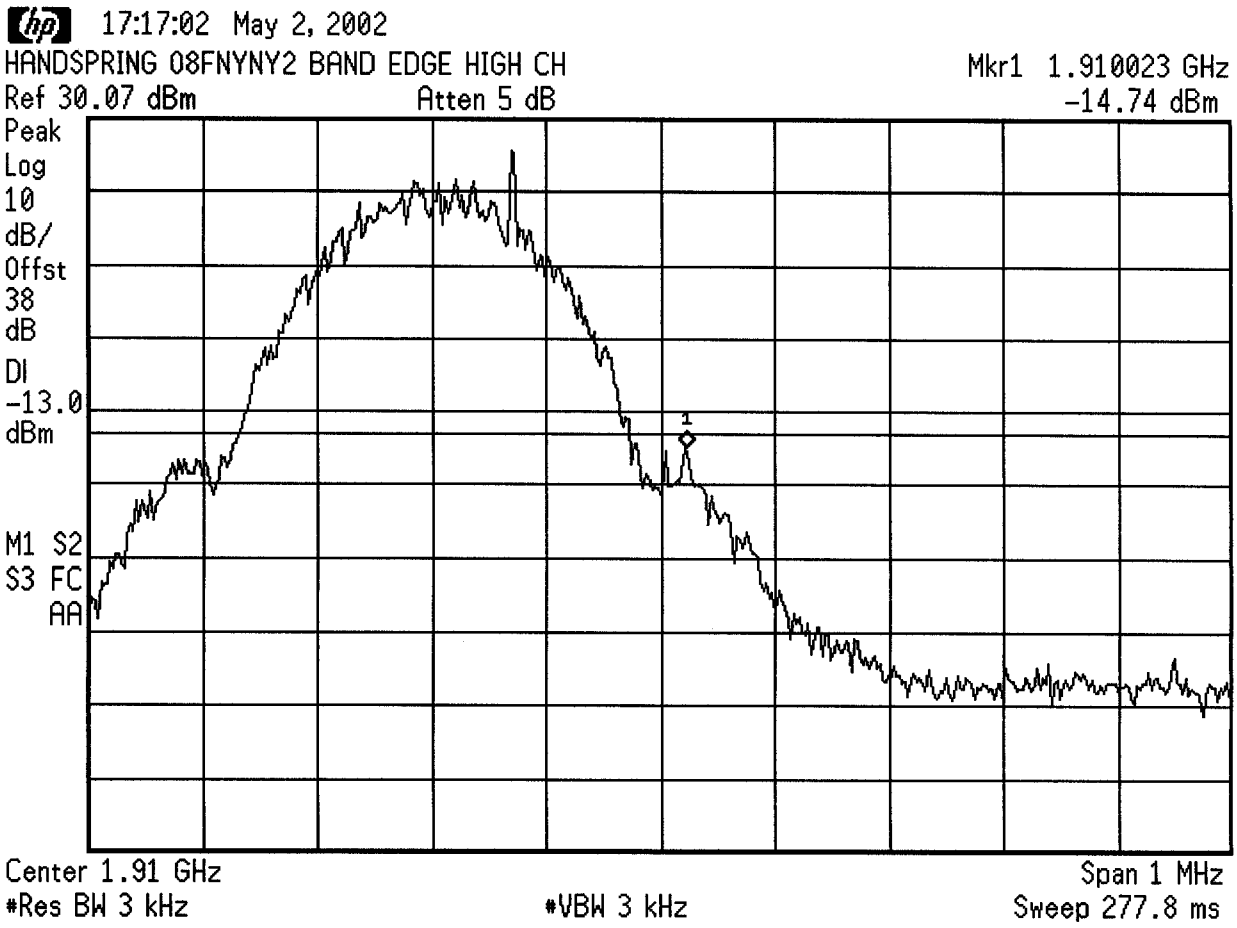

08:26:10 May 3, 2002
HANDSPRING 08FNYNY2 COND SPURS CH 810
Mkr1 2.319 GHz
Ref 30.07 dBm
Atten 5 dB
-25.07 dBm
Peak
Log
10
dB/
Offst
38
dB
Dl
-13.0
dBm
M1 S2
S3 FC
AA
1
Start 10 MHz
Stop 2.5 GHz
#Res BW 1 MHz
VBW 1 MHz
Sweep 6.225 ms

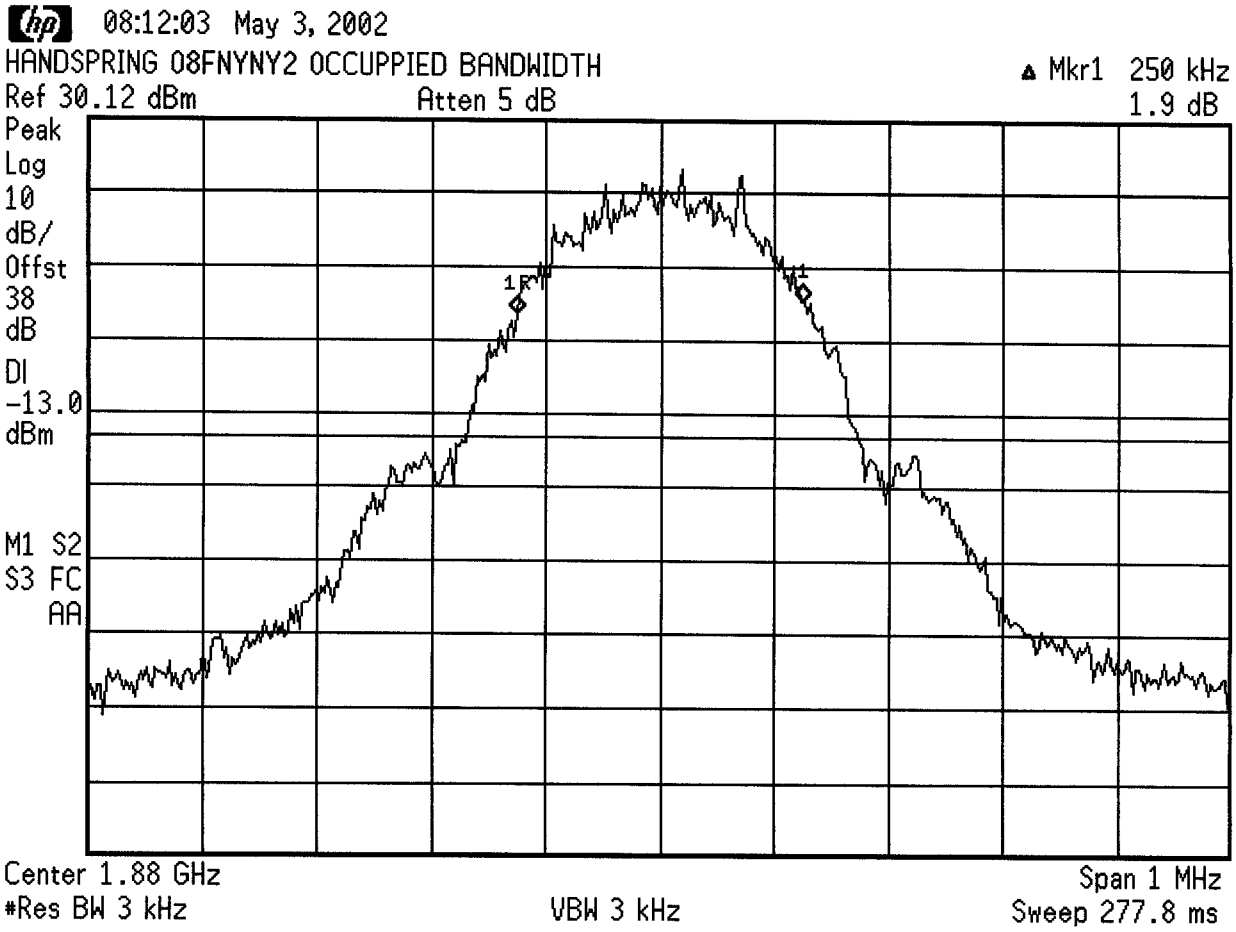

08:26:33 May 3, 2002
HANDSPRING 08FNYNY2 COND SPURS CH 810
Mkr1 2.988 GHz
Ref 30.07 dBm
Atten 5 dB
-25.54 dBm
Peak
Log
10
dB/
Offst
38
dB
Dl
-13.0
dBm
1
M1 S2
S3 FC
AA
Start 2.5 GHz
Stop 10 GHz
#Res BW 1 MHz
VBW 1 MHz
Sweep 18.75 ms

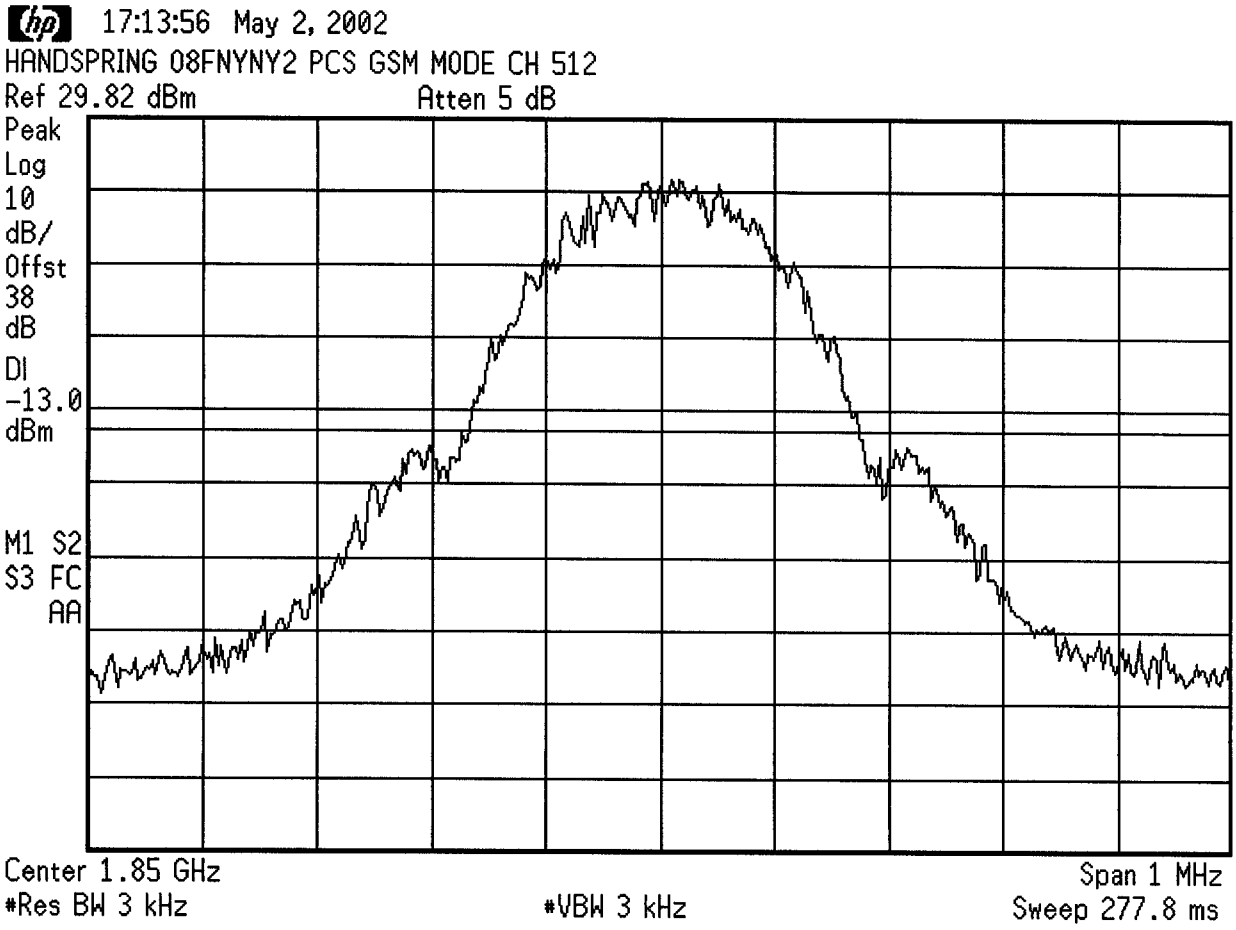

08:26:52 May 3, 2002
HANDSPRING 08FNYNY2 COND SPURS CH 810
Mkr1 10.65 GHz
Ref 30.07 dBm
Atten 5 dB
-25.54 dBm
Peak
Log
10
dB/
Offst
38
dB
Dl
-13.0
dBm
1
M1 S2
S3 FC
AA
Start 10 GHz
Stop 20 GHz
#Res BW 1 MHz
VBW 1 MHz
Sweep 100 ms

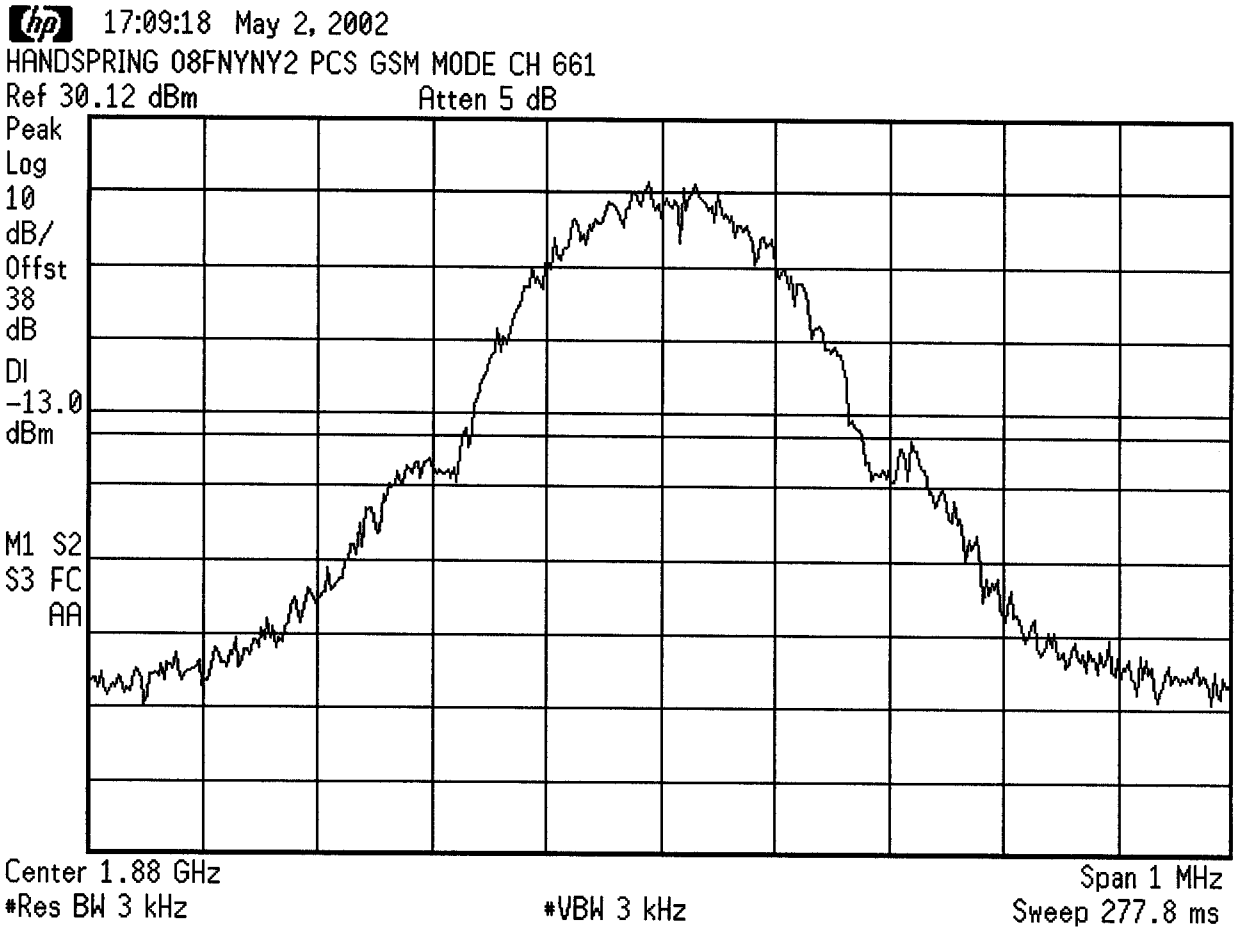

08:39:07 May 3, 2002
HANDSPRING 08FNYNY2 RECEIVER SPURS
Mkr1 1.93477 GHz
Ref -62.9 dBm
Atten 5 dB
-83.14 dBm
Peak
Log
10
dB/
Offst
7
dB
Dl
-13.0
dBm
M1 S2
S3 FC
AA
1
Start 1.931 GHz
Stop 1.989 GHz
#Res BW 30 kHz
VBW 30 kHz
Sweep 161.1 ms

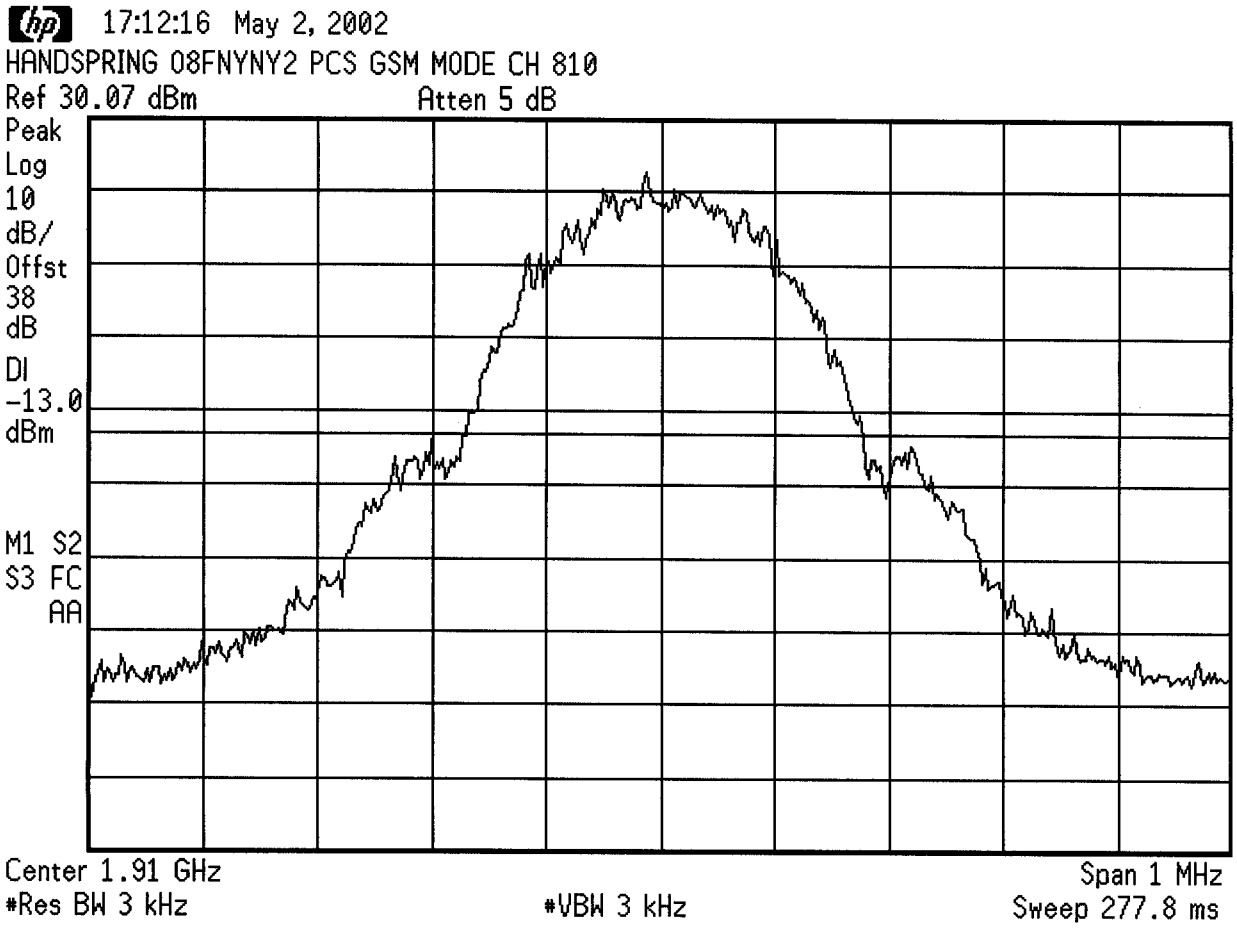

17:15:37 May 2, 2002
HANDSPRING 08FNYNY2 BAND EDGE LOW CH
Mkr1 1.850000 GHz
Ref 29.82 dBm
Atten 5 dB
-13.95 dBm
Peak
Log
10
dB/
Offst
38
dB
Dl
-13.0
dBm
M1 S2
S3 FC
AA
Center 1.85 GHz
Span 1 MHz
*Res BW 3 kHz
VBW 3 kHz
Sweep 277.8 ms


17:17:02 May 2, 2002
HANDSPRING 08FNYNY2 BAND EDGE HIGH CH
Mkr1 1.910023 GHz
Ref 30.07 dBm
Atten 5 dB
-14.74 dBm
Peak
Log
10
dB/
Offst
38
dB
Dl
-13.0
dBm
M1 S2
S3 FC
AA
1
Center 1.91 GHz
Span 1 MHz
#Res BW 3 kHz
#VBW 3 kHz
Sweep 277.8 ms


08:12:03 May 3, 2002
HANDSPRING 08FNYNY2 OCCUPPIED BANDWIDTH
Ref 30.12 dBm
Atten 5 dB
Mkr1 250 kHz
1.9 dB
Peak
Log
10
dB/
Offst
38
dB
Dl
-13.0
dBm
M1 S2
S3 FC
AA
1R
1
Center 1.88 GHz
#Res BW 3 kHz
VBW 3 kHz
Span 1 MHz
Sweep 277.8 ms

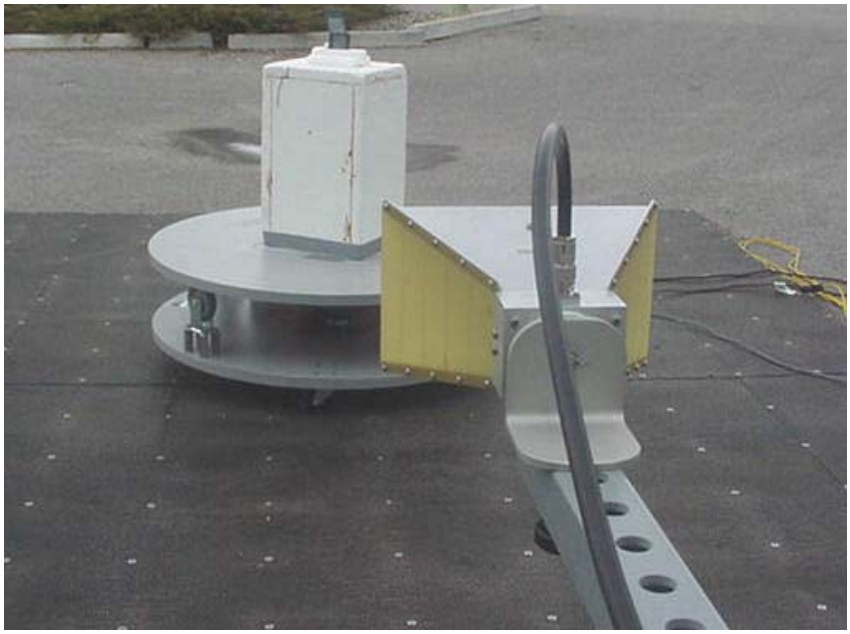

17:13:56 May 2, 2002
HANDSPRING 08FNYNY2 PCS GSM MODE CH 512
Ref 29.82 dBm
Atten 5 dB
Peak
Log
10
dB/
Offst
38
dB
Dl
-13.0
dBm
M1 S2
S3 FC
AA
Center 1.85 GHz
#Res BW 3 kHz
#VBW 3 kHz
Span 1 MHz
Sweep 277.8 ms


17:09:18 May 2, 2002
HANDSPRING 08FNYNY2 PCS GSM MODE CH 661
Ref 30.12 dBm
Atten 5 dB
Peak
Log
10
dB/
Offst
38
dB
Dl
-13.0
dBm
M1 S2
S3 FC
AA
Center 1.88 GHz
#Res BW 3 kHz
#VBW 3 kHz
Span 1 MHz
Sweep 277.8 ms


17:12:16 May 2, 2002
HANDSPRING 08FNYNY2 PCS GSM MODE CH 810
Ref 30.07 dBm
Atten 5 dB
Peak
Log
10
dB/
Offst
38
dB
Dl
-13.0
dBm
M1 S2
S3 FC
AA
Center 1.91 GHz
#Res BW 3 kHz
#VBW 3 kHz
Span 1 MHz
Sweep 277.8 ms

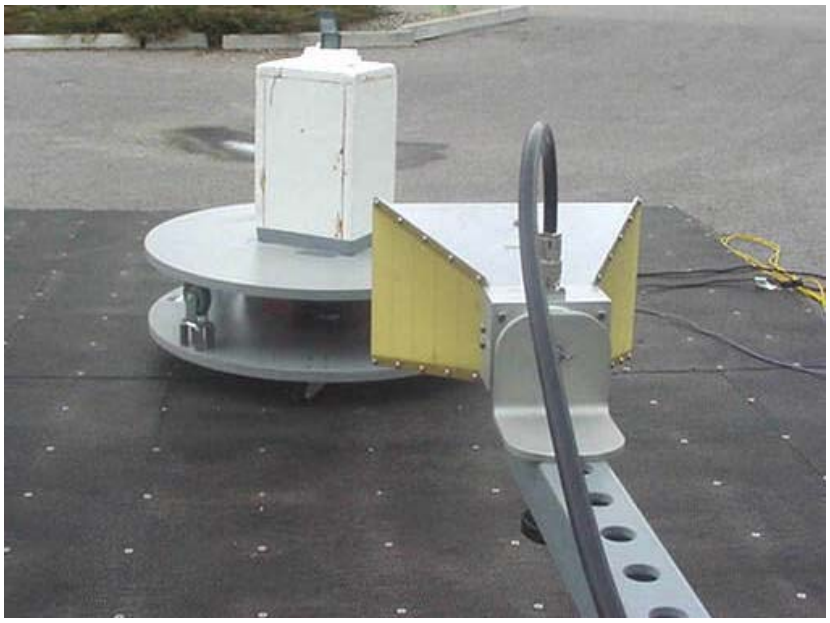
APPENDIX B - RADIATED TEST SETUP PHOTOGRAPHS

RADIATED TEST SETUP PHOTOGRAPHS
MANHATTAN UNIT - 03/12/02



RADIATED TEST SETUP PHOTOGRAPHS
MANHATTAN UNIT - 03/12/02

RADIATED TEST SETUP PHOTOGRAPHS
SHEA UNIT - 03/12/02



RADIATED TEST SETUP PHOTOGRAPHS
SHEA UNIT - 03/12/02

RADIATED TEST SETUP PHOTOGRAPHS
ATLANTA UNIT - 03/28/02

RADIATED TEST SETUP PHOTOGRAPHS
ATLANTA UNIT - 03/28/02